THE TIMES
Higher Education
SUPPLEMENT

DES calls for regional in-service machinery

by Judith Judd

Regional machinery to coordinate in-service training is urgently needed, says the Department of Education and Science in its background paper for the great debate.

The paper says that there is a risk of introspection and isolation in school-based training. This and other forms of in-service training should therefore be able to draw on support from universities, institutes of higher education, teachers' centres, subject associations and other agencies.

The three and four-year courses give little enough time for the acquisition of the necessary skills and there is a pressing need for carefully planned and supervised induction and subsequent in-service training. For those who take a one-year postgraduate certificate of education course the need is even more urgent.

In-service training is also vital to keep more experienced teachers up to date. There, the paper suggests, school-based training has an important part to play "since it takes into account the immediate circumstances and constraints of a school".

The paper voices concern that "the mutually profitable partnership with schools that the training institutions have sought has been in some cases too exclusively based on a view of education that properly held children in the fuses of attention but without relating them closely enough to the total social context of their lives".

Although the accusation that teachers are remote from "real life" is over generalized, it may be that too many teachers start their career having little knowledge of the realities of daily life and of industry and commerce.

A case could be made that every student training as a teacher should acquire a good understanding "of the means by which a society makes its living and of the circumstances in which pupils will spend their working lives".

On academic standards among student teachers, the paper says that, apart from the already established aim of a normal requirement of two A-level passes, certain qualifying standards in English and mathematics, perhaps at O level, must be considered.

Education and training institutions have tried to adapt their courses to the changing needs of schools and to equip new teachers with the ability to judge what innovations should take place.

NELP building to restart as cleaners end picket

Cleaning staff at North East Lonsdale Polytechnic have called off their five-month long picket of the college's Holbrook annexe and teaching is likely to restart at the building early next month.

The cleaners, who took strike action over the allegedly dangerous level of asbestos dust in the annexe, brought all teaching to a halt. Students in the School of Independent Study and on the college's fashion and textile design diploma course and MSc programme in educational psychology had to be temporarily rehoused. Thousands of pounds worth of equipment which has lain untended since September may now have to be replaced or renovated.

After talks with Dr George Brunton, the polytechnic director, and local authority representatives last week the cleaners agreed to call off their picket so that building work started last summer could be completed. A firm of industrial cleaners, nominated by the Transport and General Workers Union, to which they belong, is to move in and clean the annexe before it is used for teaching again.

Many student nurses have been hit by the cleaners' action. The School of Independent Study, which caters for 140 Diploma in Higher Education students and those taking degrees by independent study, was rehoused in Portakabins last October.

Although Mr Stephenson says there has been a "Dunkirk spirit" among staff and students he, for instance, has not had a room, desk or chair since the start of term last October. The school's administrative staff have been on paid leave since last December because of complaints in the Portakabins which has presented a further difficulty.

Mr Alec Wallridge, course tutor for the educational psychology programme, said this week that his students and the local community had suffered. Practical work with children with learning and behavioural problems from nearby Flaistow, rated an educational priority area, had been halted.

Squeals over Oakes committee

continued from page 1

Appointed by the Secretary of State are Lord Alexander, retiring secretary of the Association of Education Committees; Mr J. W. Burnett, principal of the College of Ripon and York St John; Sir Michael Clapham, chairman of the Council; Professor Malcolm Ogborn, Dr Kay, Mr P. L. Knight, secretary of the Polytechnic of North London, Mr T. G. Morrer, managing director of Thomas Mercer Ltd and vice-chairman of the governing body of Hatfield Polytechnic, Dr Bill Taylor, director of the London University Institute of Education, Cllr M. G. Venn, chairman of the standing conference of regional advisory councils for further education.

Nominated by the Council of Local Education Authorities are: Sir Ashley Bramall, leader of the Inner London Education Authority; Mr K. Brookshaw, chief education officer of Birmingham; Mr W. V. E. Cairns, chairman of the Nottinghamshire Education Committee; Mrs P. L. Coker from Essex County Council; Mr J. R. Herroll, chairman of Cambridgeshire County Council; Cllr Peter Hinton, chairman of Sheffield Education Committee; Mr D. E. A. Jones, chief education officer of Gwynedd County Council; Mr J. A. Springett, county education officer of Essex County Council; Cllr M. Thornton, leader of Wirral Metropolitan District Council. The Welsh Joint Education Committee is represented by Lord Haycock, its chairman.

The Association of Principals of Colleges is represented by Mr L. H. Farnsworth, principal of Brighton Technical College. Nominated by the Committee of Directors of Polytechnics are its chairman, Dr Arthur Sudlow, provost of the City of London Polytechnic, and Dr Raymond Rickett, director of Middlesex Polytechnic.

The representatives of the National Association of Teachers in Further and Higher Education are: Mr Tom Driver, retiring general secretary; Mr D. E. Edwards, principal of Rotherham College of Technology; Mr Francis Gennings, principal of Rolle College; and Dr P. Knight, senior lecturer at Plymouth Polytechnic.

ILEA clash looms over poly audit

A confrontation between the Inner London Education Authority and one of its polytechnics seems likely over its right to audit their books.

At a meeting last week between the directors and Mrs M. J. Rees, chairman of the ILEA further and higher education sub-committee, Mr Colin Adamson, director of the Polytechnic of Central London, made clear his opposition to the audit. His colleagues, however, agreed with the audit in principle but not with the proposed perpetual auditors.

In putting the audit scheme before the education committee this week, Mrs Rees announced what most London directors see as a concession to protect polytechnic autonomy. She said there would be further discussion with directors on the method of the audit. The auditors will be based at the individual polytechnics, seconded from the Greater London Council staff and working inside the polytechnics alongside their own accounting staff.

This compromise is likely to satisfy the directors of Thames, City of London and North London Polytechnics and, it is understood, may lead Mr Vivian Porcino Mendoza, director of the Polytechnic of the South Bank, to drop his opposition. At a meeting last week he described the ILEA as "misguided and ignorant".

Dr Adamson has criticized the authority for its policy on overseas students and attempt to control polytechnic spending through the audit. He is understood to have threatened to sue the ILEA auditors from his polytechnic.

Two given top French honour

Mr Jacques Grosjean

Mr Jacques Grosjean, head of the applied mechanics group at Bath University, has been made a *Chevalier de l'Ordre National du Merite*—the highest civilian honour in France—for his pioneering work in developing the university's unique courses in engineering with a foreign language.

Mr Grosjean was born and educated in France until 1940 when, at the age of 16, he escaped from Brittany in a small fishing boat to join the Free French Forces in London. After the war he took no engineering degree at London University and has worked in England ever since first in industry and then at Bath.

Much of his time has been devoted to Bath's engineering with French degree, launched in 1966, and the engineering with German course that followed it. Frequent visits to France have created valuable teaching and research links between the university and French engineering schools and industry.

The honour has also been bestowed on Professor Sir Nevill Francis Mott, honorary professor of experimental physics at Cambridge University and senior research fellow at Imperial College, London. "Through his long scientific career, and notably at the head of the Cavendish Laboratory, he has greatly contributed to improving the links between French and British scientists", said the French Embassy in London.

Liverpool chemists close to total enzyme synthesis

A significant scientific achievement is within the reach of a team of Liverpool University chemists: total synthesis of an anti-bacterial enzyme called lysozyme, which is more than twice the size of any protein molecule previously synthesized.

Professor George Kenner, Royal Society Research Professor at Liverpool, announced in a Chemical Society lecture in London last week that after six years' work his research group has put together the sequence of 129 amino acids that make up a lysozyme molecule. They must now remove all the "protecting groups" attached to sensitive parts of the molecule as it was built up, and purify—and hopefully crystallize—their material.

These last stages are very tricky, involving new methods of chromatographic separation, but Professor Kenner expects to complete them successfully. He will then have made a protein whose molecular weight is more than twice that of insulin, the biggest artificial protein obtained pure so far.

Crystallization of pure lysozyme would be a major triumph of classical organic chemistry, for the Liverpool group has relied essentially on a wide range of well-tried techniques, starting with short chains of a few amino acids and systematically assembling them into larger and larger polypeptide units and finally a molecule with 129 amino acids. Reactions were carried out in solution with full use of protecting groups.

Professor Kenner had consulted some of the world's leading protein chemists before embarking on the project, and there was a widespread feeling that the old synthetic approach would not work for such a large molecule.

His method contrasts with the solid phase synthesis preferred by many research laboratories, where one end of the growing polypeptide chain is chemically bonded to a resin, usually polystyrene, and amino acids are added to the other end one by one. This route has also been far produced an inseparable mixture of compounds when applied to larger proteins like lysozyme.

UEA warned of 30 per cent cuts if staff left untouched

If staff budgets at the University of East Anglia are left untouched, non-staff budgets will have to be reduced by 30 per cent in 1977/78, the university's resources committee has predicted.

In a discussion document on estimates, expenditure and savings, aimed at stimulating discussion of solutions to the university's problems, the committee estimates that the 4 per cent cut in the university's income in 1977-78 will in practice mean a deficit of £400,000 or 5.7 per cent on this year's planned spending.

Wages and salaries account for 78 per cent of expenditure, it says. It cannot be guaranteed that there will be a 6 per cent wastage of staff, and even if there was, the posts concerned might be crucial to the running of the university.

"And yet we see little point in looking only to non-staff costs to take the whole of the 6 per cent. This would mean reducing one item of non-staff expenditure by an average of 30 per cent."

The committee says that four key causes the university's accounts are expected to balance this year, but must not be misled into thinking that everything is all right. The university would be seriously out of balance next year unless remedial action was taken in the next few months.

"By taking appropriate steps quickly the university will give itself some chance to make reasoned and reasonably planned entry into 1977-78; some chance to choose priorities rather than be entirely dependent on making savings through fortuitous vacancies and resignations; and some chance to plan the near future instead of being dictated to by the need to make immediate and unselective savings".

Universities better off

continued from page 1

● The Committee of Vice Chancellors and Principals has put to the Government the need for a hardship fund of about £5m to help students in difficulties over tuition fees.

At a meeting last week with Mrs Williams, Secretary of State for Education and Science, the vice chancellors expressed their concern about the high level of fees for 1977-78 and said that, bearing in mind the percentage increase over this year's levels, the hardship fund might be increased proportionately.

Among other topics discussed was the impact of the cuts announced in the autumn statement. Mrs Williams said that the Government had indicated that, over the next three years' time the university population would be 285,000, more than half the 560,000 total higher education target for 1981. The White Paper, *A framework for Expansion*, had envisaged that by 1981 the total would be divided equally between universities and polytechnics.

Mrs Williams said that their grant for 1977-78 was not likely to be reduced by as much as 4 per cent.

LMH to leave NUS?

The Junior Common Room of Lady Margaret Hall, Oxford, voted this week to disaffiliate from the National Union of Students. The voting was 43 to 37, but the decision is now to go to a ballot.

Protest students change minds on ceremony

The students' union of London University's fraternity of Education has changed its mind about the opening ceremony of the institute's new building.

At a meeting last week students voted to rescind their earlier decision to oppose the opening ceremony which was to have been performed by Queen Elizabeth, the Queen Mother, on March 1. Students had agreed to boycott the ceremony in protest against education cuts. Now they have decided that the ceremony will be merely postponed, should take place as soon as is convenient.

NEXT WEEK

Profile of Polytechnic of Wales

Engineering and science curricula

Australia's new universities

Murdoch

Henry Chilver: the industrial crisis

The SRC and high energy physics

Talking point

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Public sector 'no change' as Oakes begins

by Judith Judd and David Walker

The Government has issued a paper for the Oakes Committee's first meeting this week which seems to rule out any sub-central changes in the way the public sector of higher education is run.

The paper says the binary system will remain, with important consequences for the group's work. The universities were less adaptable when higher education numbers were relatively stable while the key characteristic of public sector institutions was that of meeting needs expressed by student demand and requirements for qualified manpower.

One result of this was that the system of management should not isolate higher education from further education "so that there is scope for staff and buildings to be transferred from one to the other to meet changed circumstances."

Another was the need of institutions and staff to be adaptable to change. "The latter's management in regard to tenure, premature retirement, redundancy, retraining, safeguarding and redeployment will need to respect this."

The paper says that the local authority role in higher education will remain and there will need to be *coordination* with the universities. Relations between central and local government, including finance, will also remain as they are.

To begin with, the group should concentrate on the present arrangements for financing higher education, the relationship between the authorities and the institutions and the respective responsibilities of authorities, regional and national bodies.

It should also focus attention on the problems of the next 10 to 15 years, bearing in mind that higher education numbers are unlikely to increase much after the early 1980s and may fall towards 1990. "Temporary expedients will be needed until pressure on student places diminishes and an easier financial situation enables better arrangements to be made". Planning, says the paper, will have to be for rationalisation rather than development.

As a possible aim the committee should try to make the most cost-effective provision within the available resources, to meet the demand from students of any age.

On underused facilities for science and technology it warns that the management system must be responsible for a "considered, national decision as to what extent underused resources should be kept in being in expectation of future demand, or diverted to other uses".

A major criticism of the present management system is the lack of accountability.

The problem of the committee is to ensure that staff can be accountable to governing bodies, governing bodies to their parent authorities, academic boards to validating bodies, authorities to their ratepayers and the Government to the taxpayer.

If the group decides some responsibility should go to regional bodies, it will have to decide to whom they are to be accountable.

The paper stresses that it is not intended to be prescriptive, but to promote discussion.

A straw poll of the committee's members has revealed their uncertainties and colleges.

For example, before this week's meeting Councillor Malcolm Thornton, of Wirral Metropolitan District Council, spoke of the need of a policy to tie on "a representative of the National Association of Teachers in Further and Higher

continued on back page

Authorities' bid to tighten grip threatens poly autonomy

by Sue Reid

Local authorities are making a new and determined attempt to increase greatly their control over the teaching and non-teaching staff establishments in polytechnics and drastically weaken the hand of governing bodies.

The controversial move, which is threatening the autonomy of the colleges, faces vigorous opposition from polytechnic staff. But in the past month at least five authorities have taken action designed to curtail the power and responsibilities of governing bodies of the colleges they fund.

Haringey, Barnet and Enfield, which jointly control Middlesex Polytechnic, have submitted a revised draft of the college's instruments and articles of government to the Department of Education and Science which, if approved, will curb the polytechnic's control of staff numbers and grades.

The move, expected to open the floodgates for similar proposals, has won the backing of Cleveland authority, which funds Teesside Polytechnic. It has offered to join representatives of the three London authorities in sending a delegation to the DES to press for more local government power in polytechnic administration.

A document outlining methods of bringing the staffing establishment at Newcastle Polytechnic more firmly under local authority control has been drawn up by Newcastle City Council. It has already been received by the authority's education committee and will be discussed by the polytechnic council next week.

At Kingston discussions are also under way between the authority and the polytechnic about the control of the non-teaching staff establishment.

Last December the annual general meeting of the Association of Metropolitan Authorities voted in favour of strengthening authorities' control over polytechnic staff. The association, whose constituent authorities fund 18 of the 30 polytechnics in England and Wales, passed a motion, proposed by Haringey and seconded by the Inner London Education Authority, which stated: "Those local authorities which maintain polytechnics must have direct control over the staff of such establishments in order properly to discharge their full financial and other responsibilities."

The revised draft of Middlesex Polytechnic's articles of government allows for the joint education committee, made up of members of the Enfield, Barnet and Haringey authorities, to assume full control of the numbers and grades of teaching and non-teaching staff, a responsibility currently in the hands of the governing body.

The draft, made necessary because of recent college mergers with the polytechnic and the close the original instruments and articles were drawn up, also reduces academic and student representation on the governing body.

It is expected to provide a test case. The instruments of most of Britain's polytechnics are aligned with a DES model allowing maximum autonomy, and the department may not be a willing participant to plans to weaken the role of governing bodies. Mr Gordon Oakes, Minister of State overseeing higher education, has already refused to meet the deputation from Haringey, Enfield, Barnet and Cleveland but talks are going on at officer level.

A DES spokesman said this week: "We are now in the process of consultation."

But he added: "In general the department believes that the powers of governing bodies should not be reduced."

Governors of Huddersfield Polytechnic will appeal to Mrs Williams, Secretary of State for Education, against Kirklees Council's plan to reconstruct the polytechnic's governing body. The governors wanted a governing body of 35 to serve for three years with 11 local authority representatives, 18 academics and six from industry.

This week the council approved a scheme for a governing body of 37 to serve for four years to consist of 11 local authority representatives, 14 academics and 12 from industry.

Nearly 900 students at the London School of Economics voted on Wednesday to continue their occupation in protest over fee increases. Full story page 3

Professor loses 'right to supervise my subject' claim

by Frances Gibb

Edinburgh University's court has rejected a professor's claim that if teaching in his subject is not done under his supervision the university is in breach of contract.

Dr Duncan McMillan, professor of Romance linguistics, claims that under the terms of his contract of employment he has statutory responsibility for all teaching in Romance linguistics or any course definable as "contrastive description of modern neo-Latin languages."

He is objecting to proposals by the department of French to introduce, in October 1978, a new course entitled the history of French and related languages. Professor McMillan said this week that despite the court's decision he had been legally advised that the university was in breach of his contract of employment. He had not yet decided whether to take legal action.

The new course was unsuitable, and in its present form should not be taught at all, he argued. He claims that he was not consulted over proposals for the new course.

The issue first arose 15 months ago and after discussion on various committees was brought before the court. The university's view is that the professor's claim that any member of staff has the right to insist on instruction should take place in a certain subject except under his supervision or with his permission is "academically unacceptable".

A spokesman said it had always been understood within the university that a course could be mounted provided it had been through the proper proceedure of boards of studies and the senate. This principle was implicit in the running of the university. A professor could not have the sole right of veto.

The issue has necessitated an inquiry by a standing committee of court comprising academic staff on the rights and responsibilities of professors and heads of department in relation to teaching.

MRC expects 2% cut

by Clive Cookson
science correspondent

The Medical Research Council is expecting a two per cent cut in real income for 1977/78. Since expenditure in 1977/78 will bear the full brunt of grants made in earlier years, this will severely restrict the amount for new awards in the current academic year, and will force the budgets of the council's own establishments to be cut once more, it says.

The budget for 1977/78 will be £85m, compared to £82m for 1976/77. This is likely to mean a two per cent fall at constant prices.

The MRC is to give priority to grants for individual research projects lasting a maximum of three years over applications for longer term support in the form of five-year programme grants.

Scientists are being advised to seek support for their research under the project grant scheme unless there are special reasons for following that a programme grant application might be given a very high priority. Decisions on programme grant applications will be delayed until the summer, when they will be considered together in competition, and they are likely to succeed "only in the most exceptional circumstances".

The MRC hopes to make substantially more money available for project grants. "Since more applications are being received, however, it seems unlikely that any improvement in the proportion of successful applicants will occur", the council says.

It is clearly trying to reduce its long-term commitments because of the uncertain financial outlook. The number of training awards is to be cut slightly this year.

London v-c payment complaint rejected

The Privy Council has dismissed a petition from Professor John Griffith, professor of law at London University complaining about £6,000 in backpayment made to his vice-chancellor.

Professor Griffith, who lodged his complaint in November, 1975, claimed the payment was in breach of the Government's pay policy of July 1975, and was an unnecessary and unwarrantable expenditure of public money. He also claimed it was illegal under the statutes of the University of London Act 1926.

The three Lords of Appeal (Salmon, Fraser and Russell) dismissed the petition saying that no case had been shown which called for any directions by the Visitor (the Queen) to whom the petition was addressed.

"Talking Point", page 10.

Contents

Do away with CVCP and UGC–Beloff

by Sue Reid

Crucial savings would be made if the higher education section of the Department of Education and Science and the "twin bureaucracies" of the University Grants Committee and the Committee of Vice-Chancellors and Principals were scrapped, Professor Max Beloff, principal of the University College, Buckingham, has declared.

He has put forward a plan for savings in universities' non-productive expenditure, made out a case for the State taking a secondary role as a provider of education, and strongly criticized the number of overseas students allowed to begin higher education courses.

Giving a paper to the City University he said: "To get rid of the DES's higher education section and the UGC and CVCP would be an important saving of non-productive expenditure. If universities were to be entrusted with spending the product of their fees and a subsidy which, apart from research, was calculated on some simple formula, would probably much increase their efficiency."

"I believe that there is a good case for saying that the State should never be the principal provider of education at any level and that its role should be as far as possible restricted to financial subventions of voluntary effort with the minimum of direct intervention."

If however it was necessary to work with what was inherited. There was no possibility that in a country where the State financed higher education to the overwhelming extent it did in Britain that an independent sector could develop in the way one existed, greatly to the nation's benefit, in primary and secondary education.

On overseas students in Britain Professor Beloff said that higher education remained one of the most important potential exports. The imposition of differential student fees violated both academic decency and the basic principles of market economics.

As Buckingham identical fees were charged to all students doing the same courses.

But he added: "Probably ten many overseas students are being allowed to begin HE courses. I say 'begin' advisedly, because quite a proportion of those who apply to us have made a start elsewhere."

Several things defeated many of them. The most obvious was language. Even from Commonwealth countries where secondary education was in English and where a reasonable colloquial level could be expected it could not be assured that the translation to university work demanding the understanding and manipulation of abstract concepts was within their immediate reach.

The second academic year of the university college was started at the end of January with 105 new students and 56 others entering the second year of their studies.

Of the new students 63 are reading law; 19 law, economics, and politics; 14 economics; and nine history, politics and English.

Scientists urged to act on human rights

by Clive Cookson
science correspondent

The application of International Human Rights Law to scientific research are examined for the first time in a Council for Science and Society report, published this week. It argues that scientists have a duty to take action on behalf of colleagues deprived of their scholarly freedom.

Few scientists realize that there is now an internationally accepted code of human rights providing a universal standard against which the performance of governments and public authorities can be measured. It has grown up since the Second World War by the accumulation of international instruments signed and ratified by many governments of different countries, and starting with the United Nations' Universal Declaration of Human Rights in 1948.

A distinguished study group, consisting of Professors Michael Aitken, Hans Kornberg, Martin Pollack and John Ziman, Mr Paul Sieghart, Mr Ian Riley and the late Sir Kenneth Younger, prepared the report which describes the relevant provisions of International Human Rights Law in detail and shows how they affect science.

Scientists, individually and through their professional organizations, must protest publicly against infringements of International Human Rights law anywhere in the world, and in clear cases must employ sanctions against transgressors, argues the report, which has been endorsed by the British Institute of Human Rights.

This is because supra-national institutions to enforce compliance with the international code have not been created—with the exception of the 19-nation Council of Europe, which has a commission and court to enforce the European Convention on Human Rights.

The report regards public protest as a much more effective weapon than private persuasion whose efficacy "is unpredictable", and whose effects are "seldom verifiable". Public protest, on the other hand, had more than once in recent years been found in have quite remarkable success, provided it was measured, restrained, well-informed, but always persistent and firm.

"In our view it is a mistake for any organization of international standing—such as many of the recognized scientific institutions—to refrain from using the powerful and tested weapon of public protest only because the channels of private persuasion have not yet been exhausted".

Supporting international scientific conferences in countries where scientists are oppressed, and refusing to enter into scientific exchange agreements with offending nations, are mentioned as practical examples of possible sanctions.

"The scientific community has always been sensitive to persecution of its members and has never entirely repudiated its duty to help them. But such action has usually been sporadic, ad hoc, and uncoordinated, without any central throne or organized core. In the past this may have been due to difficulties in perceiving and articulating the precise issues at stake in individual cases.

"By examining these issues against the invariant standards of International Human Rights Law, all those concerned can assess their allegiance in a simple common cause. Instead of wasting time and energy in attempting to define yet again the essentials of scholarly freedom, and to draft agreed documents expressing these essentials, individuals and groups may freely and easily support the existing human rights code, knowing that this covers the issues in almost all the important respects.

"The way is thus open for a much more positive approach to actual cases that arise in practice, and for strong collective action against serious cases of oppression.

"We therefore propose that individual scientists, organizations, learned societies and relevant government agencies should all study the International code and express their full support for all the provisions which are relevant to the problems of scholarly freedom".

The establishment of a central clearing house to collect and evaluate information about the deprivation of scholarly freedom is recommended. But to command the necessary respect for its impartiality it is suggested it should be operated by one of more international organizations, including at least one non-governmental body accredited to the International Institutions responsible for the creation and supervision of International Human Rights Law.

The International Council of Scientific Unions (ICSU) and International Commission of Jurists (ICJ) are suggested as the most suitable bodies to run the scheme. ICSU could supply the information, and ICJ would decide whether International Law was violated. The ICJ executive committee has indicated its willingness to undertake this function.

Mr Paul Sieghart—on study group

The report "deliberately refrains from citing specific contemporary examples of the oppression of scholars or scholarship: others by drawing attention to persecution in one country, we could be taking to task for failing to give equal prominence to persecution in another". Thus Nazi Germany and the colonels' Greece are mentioned, Chile and the Soviet Union are not.

Scholarly Freedom and Human Rights, published by Barry Rose (Publishers) Ltd, £2.25.

4 storey complex opens in Wolverhampton

Wolverhampton Polytechnic has formally opened new extensions to house a four-storey library, students' union suite, audio-visual centre and sports complex, at a cost of £1.5m, most of which will be borne by the hard-pressed further education pool.

The library building has a floor area of 4,200 square metres and 750 reader study places. It has been designed to provide for the long-term needs of the polytechnic and neighbouring colleges. The present stock of 70,000 volumes is planned to grow to 200,000 as the student numbers increase to 4,600 by 1981.

£150,000 appeal

An appeal for £150,000 to fund a chair in education for international understanding, cooperation and peace in London University's Institute of Education was launched this week.

The Marc Goldstein Memorial Trust was founded as a tribute to the work of a London teacher who died in 1970. Contributions should be sent to the Donations Secretary, Mrs Jean Coffins, 125 Turney Road, London SE24 9JB.

Problems of graduate employment

Primary jobs most scarce

by Frances Gibb

Students qualifying as teachers find it hardest to get jobs in primary schools, according to a survey by the University of Aberdeen Careers and Appointments Service.

Based on replies from some 950 teacher training graduates from all eight Scottish universities and Paisley College of Technology, the survey shows that in the September after graduating, 38 per cent of students seeking primary school jobs were still unemployed.

The next most difficult area was at secondary level in history, geography, modern studies or economics. Jobs were easier in mathematics, physics, business studies or music, where only 3 per cent were unemployed, and in English, modern languages, chemistry and biology, where 10 per cent were unemployed.

Mr D. B. Haggart, the senior careers advisory officer, said although the two larger percentages were "unacceptably high", they were lower than expected, and other two percentages represented levels which could be regarded as acceptable, bearing in mind that they referred to the position only one month after the start of the first school term after completion of training.

The highest ratio of applications to places on average were for secondary level teaching in history, geography, modern studies and economics (2.9 : 1) and primary posts (2.6 : 1).

The highest number of applications were for secondary teaching (history, geography, modern studies and economics) in the border region, and for primary teaching in the central region. The ratio of applications for primary jobs outside Scotland was 6.3 : 1.

Poly students no better off

Almost half the students completing courses at Sheffield Polytechnic in 1976 found permanent work within six months and a further 16 per cent secured temporary or sponsored employment, a survey by the college has revealed.

Only 4 per cent of the 1,840 students graduating with degrees, certificates or diplomas in 1976 were known to be unemployed by the end of the year. Nineteen per cent of the output went on to research or higher degree courses.

Of the BEd students almost three-quarters obtained permanent jobs and only 6 per cent were unemployed by the end of the year. Forty-five per cent of the 516 students completing the certificate of education course found permanent work and a further 5 per cent entered temporary or sponsored employment. About 2 per cent of these students were unemployed.

Uncertainty on the rise

Many more students at the end of last year were either unemployed or their destinations unknown, compared with the year before, according to the annual reports of two university careers services.

The proportion of the 1,400 first degree students whose destination was unknown at Newcastle rose from eight per cent in 1975 to 13 per cent last year.

Although the number of unemployed appears to have fallen from seven per cent in 1975 to five per cent last year, this may in part be due to the increase in the number of unknowns, the report says. It may also be partly because of the rise in those entering short-term employment.

At Glasgow, out of 1,860 first degree graduates, the proportion unemployed or whose destination was not known, or who took work overseas, rose from 11 per cent to 15 per cent.

At both universities, the bulk of students went into industry and commerce. At Newcastle, industry and the public utilities took 31 per cent, commerce and the professions 22 per cent, while at Glasgow industry took 200 students and commerce 236. Public services accounted for more than 25 per cent at Glasgow and 19 per cent at Newcastle.

By subject, Newcastle's report shows that the highest proportion of those entering employment went into agriculture (71 per cent) social studies (53 per cent) and applied science (51 per cent), compared with arts (43 per cent) and pure science (37 per cent). Pure science and arts, however, had the highest proportion of students going on to further study.

London University to end some BScs by post

London University is to abolish a majority of its BSc science degrees taken by private study and correspondence because of a severe fall in student registrations. The first

Giving in would cost £1m Dahrendorf says

By Frances Gibb

Giving in to student demands that tuition fees should not be increased would cost the London School of Economics £1.16m and mean massive redundancies, Professor Ralf Dahrendorf, its director, said this week.

Students at the LSE occupied the school's administrative buildings this week despite the director's threat to seek a High Court injunction. He warned on Monday that if they did not leave the building within 48 hours, he would be forced to take legal action.

He added, however, that an emergency meeting of the court of governors' standing committee had agreed that a last attempt to solve the dispute internally should be made. The governors' decision came after a students' union meeting had voted by 583 to 12 to continue with the occupation until their demand that the fees not be increased was met.

Professor Dahrendorf said the school shared many of the students' aims and was prepared to discuss them rationally but not under duress.

He emphasized that an injunction would only be sought as a last resort. "For someone like myself, this is an extremely serious affair. I am a liberal and do not believe in invoking the law unnecessarily." University disputes should be settled internally, he said.

Professor Dahrendorf criticized both the new level of the fees and the way the Government announced them as "indefensible". "If the Government wants to give universities freedom to make up their minds it must not put them under duress by saying if they do not implement the increases they will lose a proportion of their income."

Under the new fee levels, the LSE will depend far more than 30 per cent of its income on tuition fees, he said. There was no justification for introducing through the back door a major change in university financing or policies "directed against overseas or postgraduate students".

If the Government wanted to save £28m, which was the figure it is said to be saving by the new fee levels, the straightforward way to do it was to cut the universities' grant.

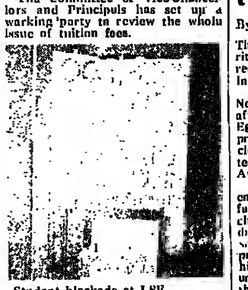
About one quarter of LSE students are estimated to be self-supporting. Home postgraduates and overseas students, of whom there are a very large number at the school, are worst affected: home postgraduates facing increases from £180 a year to £750, and overseas students from £416 to £850.

Professor Dahrendorf said one solution might be for a substantial hardship fund, possibly of the order of £50,000, and special funds for overseas students.

The National Union of Students has backed the action taken by the LSE students and called on other student unions to take up the fees issue with their authorities. A week of national action is to take place at the beginning of March, culminating in a national demonstration on March 9.

● Surrey University senate has agreed not to increase fees for part-time postgraduate students. "We believe strongly in the development of continuing education and in establishing links with industry. Fee increases would be detrimental to this philosophy."

The Committee of Vice-Chancellors and Principals has set up a working party to review the whole issue of tuition fees.



Student blockade at LSE.

Down on the farm British training equals European

The education and training of British farmers and farm workers compares well with continental systems. That was the general feeling of a British Council symposium, "Agricultural Education and Europe", attended by many of the country's leading agricultural educationists last week.

The British Council had sent teams of three or four agriculturalists to obtain a current view of educational ideas and practice in 11 European countries, and their reports formed the basis of the conference. Delegates divided into three working groups under the broad headings of higher education, integration of education and training, and teacher training and curriculum development.

After the groups had reported their findings, the conference chairman Sir Emrys Jones, principal of the Royal Agricultural College, summed up their mood: "You are obviously pleased with the British system, but you have said it is not perfect and you have identified deficiencies in it."

Sir Emrys said the farm managers currently being produced by British universities and colleges were in general superior to managers in commerce and industry. "They do not hold a candle to our farm managers. In terms of shoe ability and vision, we have managed to turn out men who are really top class and will fit perfectly into the situation of the 1980s."

He contrasted the widespread feeling that in Europe farming was something you go into if you cannot do anything else with the abundance of able candidates for jobs in British agriculture.

In a much-praised speech, Professor T. E. Hudson, formerly of Long Ashton Research Station, Bristol University, said: "There is clearly far more interest in agricultural education in Europe than there is in Britain, whether we have always got our focus right this approach. On the other hand many Continental courses at post-school level seem to provide a generous component of general education, whereas we are doing little more than pay lip service to the concept.

"Would it perhaps be a good idea if vocational education started earlier in some schools, and general education continued much longer and more vigorously at further education level, especially in foreign languages and perhaps in mathematics?", he asked.

Many delegates did feel that agricultural education could be introduced into the last two school years, but no earlier. They also felt something should be done to break down Britain's rigid barrier between school and further education, which was upsetting youngsters in the 16 to 18 age range.

There was little enthusiasm for the vigorous apprenticeship system, based on the time-honoured master-apprentice relation, which dominates agricultural training in Germany, Holland and Austria. The higher education group showed no support for the master farmer concept, though the education and training group thought there might be a place for something similar here.

The higher education group, led by Professor Watkin Williams, of Reading University, and Dr G. J. Dunrick, principal of Seale-Hayne College, Devon, were impressed by continental institutions' great emphasis on mathematics and physics in agricultural courses, both in entry requirements and in course content. There was some support for a suggestion that a certain amount of chemistry could be sacrificed to make room for mathematics and physics.

The group decided that "degrees in agriculture should not match the needs of production too closely"—a statement that aroused some of the working farmers present.

The proceedings of the symposium will be published in April with the British Council report *Agricultural Education in Europe*.

Genetics and snap, crackle, pop

by Clive Cookson,
science correspondent

The most significant of all the major benefits promised by genetic engineering is likely to be the introduction into crop plants, especially cereals, of the capacity to fix atmospheric nitrogen.

Professor S. W. Glover, professor of genetics at Newcastle University, put this first in the list of genetic engineering's likely contributions when he discussed them—and the potential hazards—at a public lecture in Newcastle last week.

"It has been estimated that about a third of the energy cost of raising a field of wheat in Britain is attributable to the cost of manufacturing nitrogen fertilizers. Thus here and even more in the developing countries the cost of N-fertilizers is a rate-limiting factor in the production of food and therefore a major problem in overcoming the world food shortage", he said. Therefore a huge financial burden would be removed from farming, and the pollution caused by nitrates washed into rivers and reservoirs would be relieved "at a stroke".

"Already, significant progress has been made in this area and I am optimistic that complete success will be achieved in the foreseeable future", said Professor Glover, who is chairman of the International Microbial Genetics Committee. Genes that control N-fixing in bacteria have been isolated on bacterial plasmids, and experiments are in progress in several laboratories to introduce them into plant cells.

Among medical applications of genetic engineering actively being pursued, Professor Glover mentioned:

● the preparation and study of cancer-inducing genes—"thus the way may eventually be open for the preparation of antisera to specific cancer gene products";

● cloning the human gene for insulin production in a bacterial host system for the possibility of insulin manufacture on a large scale for the treatment of diabetes (a shortage of the currently used animal insulin is foreseen);

● human pituitary growth hormone—only available from human cadavers and in desperately short supply—could be obtained in a similar way;

● production of specific human antibodies and antigens would be a major step in treating or even preventing a wide range of diseases;

● "more distantly and certainly very speculative is the remote possibility of treating hereditary diseases by individual gene therapy."

Professor Glover forecasts major industrial applications of genetic engineering, particularly to increase enormously the yield of microbial enzymes used in many processes. "More speculative applications might, for example, be in the construction of tailor-made micro-organisms, say to deal with pollution problems such as major oil spills."

He went on to the public debate about the hazards of genetic manipulation, which took off in 1974 when a group of American scientists, led by Paul Berg, called for a worldwide moratorium on experiments until appropriate precautions could be taken.

"I think it is regrettable that by behaving in a socially responsible manner the scientific community has suffered so badly at the hands of the press and politicians alike. Our colleagues in other quite disparate fields of research may look upon this story and draw a moral—and may remain silent where otherwise they might have been outspoken", he concluded.

ILEA delays decision on teacher training moves

By Judith Judd

The Inner London Education Authority has delayed its decision on the reorganization of teacher training in its area.

A memorandum from Mr Peter Newsam, the authority's education officer, sent to Shoreditch College, Egham, Surrey, on February 3, proposed that the college should close and about 100 of its design and technology places be transferred to Avery Hill College.

After some fierce lobbying by the college, the ruling Labour group failed to agree on a policy for teacher training. A second memorandum from Mr Newsam to Shoreditch said he had decided not to put the proposals to this week's further and higher education sub-committee as originally planned. The report to the committee would be "purely factual" and a decision would probably not be taken until March 9.

The Government is suggesting that two London colleges, Philippa Fawcett and Furzedown and the Sidney Webb College, now part of the Central London Polytechnic, should close and has left the authority to divide the remaining 1,500 initial teacher training places.

If Shoreditch remained open Avery Hill would have to close. Mr Newsam told the Shoreditch delegation that he was concerned first with the long-term viability of institutions and second with the contribution they could make to the needs of London.

Under the first criterion the polytechnics were safe and under the second Avery Hill was marginally more useful to London since it had a wider range of courses.

Under his original proposals Thames Polytechnic would have 350 places, 200 for physical education, South Bank Polytechnic including Battersea would have 350 and the Polytechnic of North London would have 290 including 60 places at the Central School of Speech and Drama. Avery Hill would have 530 including some craft places from Shoreditch.

Mr John Penfold, a member of the action committee at Shoreditch, said: "We were amazed to read the memorandum. We are the largest single producer of handicraft and design and technology teachers in the country.

"This is a shortage area. Our students could find jobs several times over. If the ILEA's reasoning on the need to provide for London is accepted it is hard to see how institutions with a national role can survive at all.

"In London the majority of heads of departments and teachers in design technology are ex-Shoreditch students. Over the last eight years 55 per cent of first appointments for design technology were from Shoreditch.

"Our present output is 140 a year. At Avery Hill only about 40 teachers of design technology would be produced each year."

Architects reject German diploma

British architects have vetoed German Market proposals on the mutual recognition of qualifications. A scheme of architects' training in Germany has been held by the profession to be unacceptably hero.

The Royal Institute of British Architects and the Architects' Registration Council have told officials of the Department of the Environment they could not accept a three-year German qualification as equivalent to the four and five-year courses in the United Kingdom.

The British architects made clear their minimum was a four-year training course or its part-time equivalent at university level and with a final examination. The Germans, unlike the other member countries of the European Community, train a large number of their architects on shorter courses in *Fachhochschulen* — vocational colleges.

Discussions on a Community directive embodying mutual recognition of qualifications reached a head late last year when it became clear the other member countries would accept the German courses together with some amendments. The sticking point for the British was that they still contained no university level final examination nor final project work or thesis.

According to RIBA, the professional bodies in France, Italy and the other member countries shared its concern but were overridden by their governments.

Drink addiction causes concern

As many as 50 students a year may be leaving every university or college with a potentially serious drink problem, according to Dr Ian Fraser, head of Leeds University Health Service.

What might appear to be a normal level of consumption may be extremely harmful in the long run, he says. For, apart, alcoholics there is an incubation period of 18 months to two years. It is only then that the accumulated effects of regular heavy drinking show themselves.

His remarks, quoted in *Leeds Student*, follow a report by Dr D. A. MacLeod, head of the Bradford University Health Centre, who said that drink had replaced drugs as the major problem for university health officers.

Thames defies 'cut overseas number' order

by Sue Reid

Thames Polytechnic governors have voted against accepting the Inner London Education Authority's controversial directive to cut its overseas student numbers from the present level to 10 per cent by 1982. It becomes the second of the five polytechnics funded by the authority to defy the plan.

The college, which fell in line with the first phase of the ILEA quota policy, had held its overseas numbers to the same level this academic year as last, and now plans to follow the recent Department of Education and Science instruction and keep the numbers next year to the 1975-76 level.

The Polytechnic of Central London has also finally rejected the ILEA plan and the governing bodies of the North London and City Polytechnics will decide during the next month whether to follow this lead. Their academic boards have already come out in direct opposition to the directive.

A deadline for responses from the five colleges was set by the authority for February 28, but South Bank Polytechnic has called for further consultations.

Mr Vivian Pereira-Mendoza, director of South Bank Polytechnic, is also believed to have appealed for further detailed consultations with the ILEA in his capacity as chairman of the Committee of Directors of London Polytechnics. But this week the ILEA maintained that it had not received any request by letter.

The polytechnics which decide to defy the directive have been told that they will suffer a reduction in their block grant and staff establishment. Last week Mrs Janey Rose, chairman of the ILEA's further and higher education sub-committee, praised the 24 maintained further education colleges in London for falling in line with the plan, unlike the grant-aided Polytechnics.

She said: "Our colleges were asked not to increase the number of overseas students recruited in 1976 over their 1975 intake. In fact many of the maintained colleges have managed to go one better. The number of overseas students actually dropped from 5,964 in November 1975 to 5,109 in November 1976, while the total number of students rose from 19,038 to 19,364."

Government seeks industry link on scholarships

by Alan Wood

The Government is examining a possible scheme for industrial scholarships. Lord Winterbottom revealed this in replying for the Government in a Lords debate last week on the attitude of society, and particularly students, towards industry.

It was not possible to give details but the basic elements were that it would be run in collaboration with industry and would be intended for especially able students taking particular courses in engineering and technological subjects, he said.

The other type of cash incentive in mind had already been announced—students may in future receive payments by employers of up to £500 more a year without any reduction in their awards. Until now the maximum had been £185.

Lord Rochester, who initiated the debate, said the idea seemed to have gained ground among students that careers in industry were not simply unsuitable but, in some way or other, selfish. Yet surely services could be rendered to the community as much in industry as in schools, hospitals and the social services. If graduates were not to play a significant part in supplying industrial leadership, where else was it to come from?

Industry could do much more to ensure that students generally had a much better idea of what actually went on in it, the attractions it had to offer and the great service that could be rendered to the community. Large industrial organizations had little to fear in presenting themselves in this way for comparison with other large institutions.

Lord Carr of Hadley, for the Opposition, said the test by which people should judge the value of an industrial or commercial enterprise was the double one of, first, to make a profit and, second, to use that profit to the genuine benefit of society.

Until industry could carry that message with conviction he did not believe progress would be made in raising the esteem in which industrial and commercial activities were held by the country at large and young people in particular.

Lord Scebohm said the Careers Advisory Service for school-leavers was distrusted; he thought it incompetent and biased. It should be taken right out of the education system.

Lord Bowden said that a comparison of salaries offered to graduates in the town hall and those going into factories showed £1,000 difference two years ago in favour of the former. This problem, which had come about in the past five years, had not been foreseen and they must not be surprised at the consequences.

Lord Tedder said in Germany scientists and technologists in industry could hold university appointments, a system which should apply in Britain, where the system existed only in medicine.

Scientists and technologists should be seconded to universities as part-time staff at around the age of 30 and go a five-year run part. Their duty, in addition to teaching, would be to pursue their own professions.

Lord Winterbottom, for the Government, said admissions to university degree courses in science and technology subjects fell in the early 1970s but had recovered since 1974. Within the total, engineering had been doing particularly well. CNAA courses were also attracting more students and admissions to engineering increased by 16 per cent in 1976.

Nevertheless, there were still many empty places in science and technological subjects in universities and polytechnics. There were 27,000 this year of which 22,000 were at universities and 5,000 in polytechnics.

But there were signs that admissions would rise. The latest figures from the Universities Central Council on Admissions showed that the applications for 1977 entry to universities were 5 per cent higher than in 1976 for the pure sciences, and no less than 18 per cent higher for engineering. The most notable increase was in production engineering which was up by 31 per cent.

Keele boosts science intake by 50 per cent

by Frances Gibb

Keele University has increased the number of undergraduates in science by over 50 per cent in the last three years, Professor John Stewart, the vice-chancellor, said in his annual report for 1975-76.

This follows the introduction of three-year degree courses in the Normally Keele courses had been of four years, but since 1972 students have been able to omit the first year.

Like the four-year courses, the three-year ones require students in both science and non-science subjects in the first part of their course, but it differs in requiring students to take named A levels as an entry qualification.

Much of the university's programme of expansion is based on this new three-year course. It is now possible to add certain combinations of subjects to those in science and language courses which have largely comprised the course.

Commenting on the Government proposals to increase tuition fees from September, Professor Stewart said the university is particularly worried about the effects these proposals will have on the flow of people from both Britain and overseas.

"The reduction likely to result from the proposed steep increases is likely to have serious consequences for the further development of learning and also for the health of the country's economy."

In the last year there had been a continuous "process of attrition" on universities' resources and on their staffing generally, he says. This has resulted from the increasing of the student/staff ratio from 1:8 to 1:9 and from the cutting of funds for research councils; from the provision of an inadequate equipment grant and from the proposed fee increases.

Sponsorships up to £500

Mrs Williams, the Secretary of State for Education, has announced that grant regulations are being changed to allow employers to pay part or all of the sponsored student's salary as their local grant being reduced accordingly. Under present rules a student receiving up to £185 from scholarships and sponsorships without parental contribution. From September he will be able to receive up to £500 without any reduction. Similar arrangements will also apply to postgraduate awards.

Mrs Williams's clear intention is to encourage sponsorship by industrial firms so that more students take courses "directly relevant to industry with benefit to the nation's well-being of the nation."

She said in the Commons that she hoped that employers and organizations concerned would take full advantage of this change, adding that as a result more students would be encouraged to choose courses of direct value to industry.

Numbers at present benefiting from industrial sponsorship are difficult to estimate but it is known that 7,200 undergraduates are receiving grants supported by employers totalling £2.5m. However, the majority of these are supported by Civil Service departments and include a number of "non-industrial" subjects.

NUS proposes arts research council to help fight cuts

by Judith Judd

A cannell should be established to fight attempts to cut back arts research, the National Union of Students says in a paper on the future of postgraduate education.

The paper, the NUS's latest contribution to the education debate, also says that research councils should be concerned with funding research projects and not with postgraduate education. "Adequate funds to support postgraduate studies should be transferred to the University Grants Committee and its equivalent bodies for allocation to institutions on the basis of academic merit."

This would prevent the duplication of effort between the UGC and the research councils and the segmentation of knowledge which the rigid structure of the research councils promotes.

An Arts Research Council might help combat the low view of arts research, the paper says: "If there are any further cuts in arts postgraduates the teaching capability of many departments will decline. There is already evidence of the development of unfavourable staff/student ratios as a direct result of research cutbacks."

Industry should be made aware of the values of MA and MSc qualifications, for which less emphasis should be placed on formal written examinations and more on project work.

Postgraduate research is under attack, says the paper. It says the suggestion that research should be geared to the needs of society and the economy is "quite abhorrent".

"This could lead to research being done for profitability rather than academic excellence, and if taken to its logical conclusion would end all pure arts research."

The NUS finds inexplicable acceptance of industrial and business interests within the research sector "very disturbing". It says that there are already cases of industrially sponsored students being prescribed very narrow projects and often being lobbied away from projects they sorely need problems in their sponsoring industry.

Proposals to introduce a taught course to PhD level were misguided, though a taught induction course should be given from September to December to first year PhD students.

The paper says there are 9,000 self financing postgraduates, as many as 25 per cent of whom may be forced to stop studying because of the recent increase in tuition fees.

This would cause distortion in postgraduate education. In subjects where there was inadequate financial support study at postgraduate level would virtually cease in all but the largest institutions.

The decline in this area, particularly in the arts, non-business social science and non-applied science, would have a major impact on its teaching at undergraduate level.

Grading 'unsound and undesirable'

The grading system in higher education is educationally unsound and socially undesirable, according to a book published by the National Union of Students. *The Grading Game*, by Brian King, describes different types of academic assessment, profiles and argues that any method of assessment as a true test of a student's aptitude may vary considerably from student to student.

If this was so, it was a fallacy to insist upon uniformity in assessment methods in the name of usefulness or fairness. Mr King says: "I am not so much concerned to make the educational competition fairer as to make education non-competitive."

He concludes with the best example he knows of an academic profile, the graduate profile of the Birmingham School of Architecture.

The Grading Game, from NUS Publications, 3 Endsleigh Street, London, WC1, price £2.20.

Transport studies on the way

A new academic subdivision has appeared on the fringes of social sciences and engineering—transport studies. A group of teachers from universities and polytechnics based in business studies, economics, public administration, geography and planning have come together to form an organization of teachers of transport studies.

They have produced a report on the first shot in a campaign to give the subject coherence. In an introduction Professor I. C. Cheeseman, chairman of the School of Transportation at Southampton University, says that transport studies ought to be recognized as a discipline with the same integrity as engineering, science, law or medicine.

According to the report, which is addressed to the University Grants Committee and the Council for National Academic Awards, transport studies has a well-defined core in economics, so the teaching of which the history of transport and planning could well be added.

The Teaching of *Transport Studies*, 50p from The Centre for Transport Studies, Cranfield Institute of Technology.

Museum loans go on despite V and A cuts

The Victoria and Albert Museum will continue to circulate to local museums, colleges and universities almost 90 per cent of all material presently available, despite the closure of its regional services department.

Mrs Williams, Secretary of State for Education and Science, announced in a written Parliamentary answer last week that she had decided to implement the proposal of Dr Roy Strong, director of the Victoria and Albert, to close the department in order to meet the 10 per cent Civil Service staff cuts.

She also said that the Government was preparing a scheme to indemnify objects on selected museums. This would enable not merely the Victoria and Albert but any of the national collections to make objects available without requiring payment for insurance.

In addition, the Standing Commission of Museums and Galleries would be building a conference on circulating material, with a view to improving access to national collections.

Dr Strong said this week that the department's work, which involved organizing the removal of exhibitions from one place to another, could be done by three members of staff, and these would be kept on. The remaining 20 staff who were engaged on making new exhibitions would be redeployed as far as possible in other parts of the museum.

The museum is required to lose 81 of its 700 posts by April next year.

While the closure of the department represented the end of a tradition, he said it was time to examine whether the country should move towards a national loan service, or whether regional museums should lend their own exhibitions to each other.

3 awarded chairs

Strathclyde University has promoted three readers in chemistry to personal professorships "in recognition of academic distinction". They are Dr Francis Fish and Dr Geoffrey Wood of the department of pharmaceutical chemistry, and Dr John Sherwood of the department of pure and applied chemistry.

UGC sets up Atkinson study

The University Grants Committee has launched a series of research studies on the implications of the Atkinson report on capital provision for university libraries, published last summer. The decision follows a meeting with the Association of University Teachers which expressed the concern of many members about the report's implications.

Criticisms are that university librarians were not sufficiently consulted before the report was produced; that it took no account of the differing research needs of institutions and that its proposal that after reaching a certain size, libraries should relegate a certain amount of books to storage, would be costly.

A steering committee is being set up under Dr Anne Whitehead, vice-principal of Lady Margaret Hall, Oxford, and a member of the UGC. It will comprise UGC members, librarians and representatives of various research interests and will supervise the research studies.

Topics likely to be covered include the costs and best methods of relegating stock to storage and the needs of research.

OU still waits for grant

The Open University has not received its block grant for the current academic year, from the Department of Education and Science. The delay in paying the grant, due last July, has been caused by changes in the method of its assessment.

Until now the level of the current grant has been established on the previous year's grant plus an allowance made for inflation. But in the academic year 1976-77 the grant is being assessed on a new cash limit basis with a built-in allowance made for expected inflation. The new method will bring the University into line with other universities of financing other than capital projects.

Don's diary

Research USA

Since the word "research" has these days been stretched nearly to breaking point, being applied with unashamed élan to an afternoon in the British Museum or a jet flight to Acapulco, the academic with a desire to pursue knowledge anywhere with a temperate climate and a reasonably soft currency has been forced back on to the conference circuit.

In a good year that may mean no more than a week in Bulgaria discussing dwarfs in eighteenth-century theatre. But, for students of America, 1976 was a very good year. The bicentennial of American Independence, indeed, was like a combination of the Marshall Plan and a Cook's tour. It fostered deeply entrenched academic instincts: the desire to display arcane knowledge, preferably before latitude 40 N; the need publicly to denounce the work of anyone else engaged in the same line of research; and the wish rigorously to test the much overrated theory that one only has to put a girl in pearls, put a plastic tray in her hand, and hurtle her through the air at an altitude of 35,000ft for her morals to disintegrate.

In the last year I have attended several such bicentennial conferences, in Europe and America. I am extremely doubtful of the value of such occasions while remaining standfirmly committed to attending them. Who knows what fragment of truth one may pick up along with the limitation leather bag donated by courtesy of an international conglomerate who, incredibly, wish it to be known that "at every moment of the day we touch your lives".

Stirring the blood

The first conference took place at Schloss Leopoldskron in Salzburg, and was the first of five international affairs which were to climax in September, 1976, in Washington. At Salzburg I was to chair a session on popular culture and to deliver a short paper. Having spoken for the same length of time as Bridge to the newly agreed standard unit for "conference men") I was duly cut down to size by an Irish delegate who claimed to speak for the gutter"—a claim I was in no position to challenge. He denounced my colleagues, wilfully misrepresented what I had said in such a way as to reveal an obvious future in academic politics, then slumped back into his chair to glower morosely at me for the rest of the session.

We were then free to attend the reception at which 100 people stalked the room staring at one another's decolletage or breasts or whatever appeared happened to sport the international badge of conference—the plastic name tag.

I naturally enjoyed every minute, though little sticks in my mind now except the courteous hospitality of the Salzburg seminar and two or three sessions which, for one reason or another, stirred the blood.

During the opening address, for example, one Englishman journalist stormed out over some moral scruple (a decision to accept the honorary doctorate which had suffered at the hands of the Austro-Hungarian Empire.

Having by now thrown all caution to the winds, the ambassador then delivered the coup de grace to 30 years of effort to establish the independence of American studies, explaining that as teachers of that subject we were essentially doing the same job as he was, that we were in fact ambassadors for America. Moreover, he felt sure that as a result "we felt a little better in our hearts everytime Old Glory was pulled to the top of the flag pole". But then perhaps he meant politicians.

He was immediately followed by another Frenchman who wished to make it clear that he dissociated himself from the remarks of his colleague. He was followed in turn by a German who, having announced that what he had to say was in three parts, each of which could be sub-divided into four sub-sections, denounced the denunciation of the second Frenchman.

There was an audible sigh of relief as we slid so easily back on to the familiar ground of European politics, while an occasional American voice repeatedly began a hopeful sentence: "But surely. . ."

We then retired to the cellar and played ping-pong, this being the period in which table tennis was seen as the solution to any moral or political problem—which is at least an improvement on the French conviction that no problem is so complex that it cannot be solved by pushing a suppository up your bottom. And sure enough, things were back to normal in no time, with various European groups conspiring in corners, with the Irish offering endless funny stories, the baffled Lithuanian emigré professors of economics, and with the Americans heatedly discussing which of them had denounced Vietnam earliest and most fearlessly.

The conference, in other words, ended splendidly—unlike an earlier one which had taken place in Austria and at which the American ambassador had succeeded in insulting more people in a shorter time than I would have thought possible.

He began by drawing on elaborate and most unfortunate parallel between America and the Austro-Hungarian Empire, both of

Table tennis: salutiau to moral problems.

which, he pointed out, had so successfully integrated all elements in their respective societies. The ensuing intake of breath flickered the ornamental candles, and it was hard to see who was the more disturbed, the black cultural attaché who stood beside him, calculating the value of his pension in the event of early retirement, or the many Europeans who came from anarchies which had suffered at the hands of the Austro-Hungarian Empire.

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Peanut filler

A year or so later came Washington. This was the grand slam which brought people from the five regional conferences which had been held on different continents. It was well organized, the participants were distinguished, the entertainment was lavish. It was an occasion that could have been a feast to temper the torments of a little hell—hard but perhaps dull, the mind.

Some few there are those which I attended were not exactly overwhelming. There is something about a conference which turns the mind to pap and lumps. No diet for mot help. There is a conviction, born of economic necessities and fast becoming orthodoxy, that as many people as possible should speak at conferences. Perhaps it is the influence of the theatrical avant garde. The result is that instead of a single speaker one is confronted with a panel, each member of which may speak for no more than 20 minutes.

It remind, me of a United States Defence Department employee I once met whose job was to select prospective targets in the Soviet Union for intercontinental ballistic missiles. He was obliged to present his reasons for selecting the target in 35 words or less. Bad luck, Omsk.

I understand that at a recent meeting of the Popular Culture Association, held logically enough in Caesar's Palace, Las Vegas, there were 600 speakers. That is the joy of the new dispensation. Soon we will not need an audience at all. We will just send papers direct to the grant-awarding authority so that the conferees can get on with the serious business of trying to negotiate a new job and discuss the venue of the next conference, the price of plastic folders in Uppsala, etc.

But the weakness of the papers was, of course, neither here nor there. The real job of the conference was to bring people together, to let them breathe the American air, to celebrate. This was an epiphany.

Ethel's blessing

Washington is a strange city; a neoclassical jungle. You have never seen such a superstructure. But they are working at the other end too. They are building a subway system, like a culture trying to create its own genetic code, but it seems simply to move around this city is an education. If the Smithsonian buildings in which the conference took place constitutes the egg, then the cosmos and bureaucracy which we had to pass in order to reach those intellectual fastnesses, constitute the id.

And what other cities in the world regard a cemetery as one of their chief attractions? Russian hills, looking exactly like the vehicles which thread their way along another gangila of the American psyche, Disney World, set off every few minutes for a tour of the nation's corpses.

I remember too, a visit to an expensive Washington restaurant—so expensive that we could barely scrape together a $7 tip which was received with the ill-grace which it doubtless deserved. There I learnt the necessary truth that in Washington a restaurant is not primarily a place to eat; it is a place to be conspicuous.

As I ate my sweetbreads in white wine and calculated the cost of each mouthful, so Ethel Kennedy progressed gracefully from table to table bestowing social blessings as she went. Her meal was left to cool on the table. Presumably one has a good meal before venturing forth on such missions. Moonwalk Ralph Nader, who had just delivered a lecture on the evils of multinational, nibbled pensively on pieces of bread roll as though they were the soft white fingers of some predatory executive who had dedicated his life to polluting the environment with inherently dangerous machines.

Now the year of the conference is over; 1977 is the bicentennial of the few victories which we won in the War of Independence, but as a nation we have a greater sense of nostalgia for defeats than for victories. Now there are no countries left with softer currencies than our own. Unexpended balances have long since been pulled back into the general fund. I am back to chips old beans and beginning to turn my mind to the vexed question of dwarf actors in the eighteenth century. Summaries are redundant. The other day I even saw a student. But that way lies madness.

Chris Bigsby

The author is senior lecturer in the School of English and American Studies, University of East Anglia.

Campus trends seen through media eyes

Martin Trow

How does anyone know or learn about what is happening in American colleges and universities? Apart from the handful of specialists (who have their own research problems) most people must depend on the "serious" magazines and newspapers, and when something specially newsworthy is happening, on television. But the picture the mass media present of our colleges and universities is, on the whole, simplified and distorted.

I am afraid that is almost inevitable, given the nature of our system of higher education and the media themselves. This is so first because of the enormous heterogeneity of the American system, with its 3,000 colleges and universities, 10 million students, half a million teachers. And it is difficult to get across how very different these situations are from one another, or just across broad categories—for example, public junior (community) colleges as compared with private research universities—but even within categories: for example, most California community colleges are really very different from the community colleges that are part of the City University of New York.

As a result almost anything one might say about American higher education is true somewhere; almost nothing one can say about it is true everywhere. The system is not only heterogeneous but also fast-changing, in response to events and (and largely invisible) market forces as well as political or administrative decisions.

Quite apart from the effects of the size and diversity of the system is the tendency of the mass media to report events rather than the character and ordinary workings of institutions. The daily work of colleges and universities—the unglamorous business of coaching and learning—is for most newspapers not "news", and certainly cannot compete for space and attention with student demonstrations, sit-ins, or riots, or even with court actions or public charges of racism or victimization. When the media turn their attention to colleges and universities, they are likely to report the exceptional event, and to generalize from them to the whole system.

I am prompted to these reflections because I recently had occasion to make a preliminary report of the findings of a set of national surveys of teachers and students in American colleges and universities which I directed with Oliver Fulton, now of the University of Lancaster. We had done similar broad surveys in 1969, and so for this first report I chose to look at some attitudes and behaviours about which we had information for both 1969 and 1975.

The earlier survey was done during a time of great turbulence and disruption on many American campuses. The media, and especially television, followed those events very closely; one saw on the evening news programmes a good deal of rioting and violence, and got a sense of whole institutions shut down in complete disorder. One did not get a sense of the actual numbers of people involved, how many were students, what proportion of the student body they comprised, or the extent to which work was still going on in classrooms, libraries or laboratories.

Moreover, a good deal was written at the time in America as elsewhere on the meaning and significance of the "revolution on campus" and the "student revolt". This literature was on the typical assumption of extrapolating from the death of the university to the onset of the last great crisis of industrial capitalism. Everywhere academics and journalists pointed to the disturbances as evidence that the students are trying to tell us something", and then told us what it was. But as we know, communications sometimes borrow significance for their writings from the importance of the events they are analysing.

The leaders of the New Left for obvious reasons claimed all the people who demonstrated and sat-in, whatever their motive, and commitment, as members of the "Movement". Ironically, parts of the political Right shared their interest in asserting the strength of the New Left on campus: Ronald Reagan almost certainly won re-election as Governor of California by exploiting the popular resentment of the student disturbances on the Berkeley campus, and Richard Nixon was so grateful for student demonstrations against him that (as we learnt later) when they did not occur spontaneously, he arranged them.

I do not for a moment dismiss the very considerable student disturbances of the 1960s as controlled or trivial events. They had important consequences both on the national scene and for the colleges and universities where they took place. Nevertheless, I believe that what has left itself, significant parts of the political Right, many commentators of various political persuasions, and the mass media, all had strong (though different) reasons for exaggerating the extent of political radicalism among the large numbers of American students and teachers who opposed, and sometimes demonstrated against, our involvement in the war in Vietnam.

Against the picture of a radical student revolt of the 1960s, sketched by many hands and projected on the public consciousness through the mass media, the relative quiet of the mid-1970s will appear as a swing to conservatism.

This is not the place to attempt a sober reassessment of the events on American campuses in the past decade. But there is much to have been looking at make the meaning of those events more problematic than the popular view would have it. In the late 1960s there was widespread and growing opposition on campus (as in the larger society) to American involvement in the war in Vietnam, and especially sharp opposition on campus to military conscription and the draft. These sentiments were organized and mobilized by the New Left behind a broad spectrum of radical positions.

But I do not believe those slogans or positions ever gained widespread support among American students. Our evidence does not suggest that any considerable proportion of American students were "radicalized" by their experience in the movement against the war. Moreover, while the colleges and universities were "quieter" in 1975 than in 1969, this should not be taken as evidence that students and teachers were, on the whole, more conservative in 1975 than they had been six years earlier. If demonstrations cannot be taken as indicators of the range and distribution of student attitudes, neither can their absence. Our surveys give us better evidence.

In my first report on the new surveys, published a few weeks ago by the Carnegie Council on Policy Studies in Higher Education, I observed that "Teachers and students had, in some areas of behaviour and attitude, not changed their views very much between 1969 and 1975. In other areas they have become rather more liberal or permissive over those past few years, and in still others they have become more conservative. The picture of higher education that we are able to draw is both more varied and . . . more surprising than the contemporary image."

The report in which those sentences (THES, January 21) appear is unmistakably under the headline "Carnegie survey confirms campus conservatism". The first sentence of the story which follows reads: "The general public impression of an increasingly conservative outlook among American students has been given the academic imprimatur with the publication of a massive new survey made in 1975 that is directly comparable to one made in 1969." I am flattered by the papal metaphor, but I did not intend to put the academic imprimatur on a general public impression which I believe to be mistaken. I will try to summarize some of our findings in future columns, with due regard to all the problems of reporting on American higher education that I have been sketching.

NOTICE BOARD

Chairs

Dr A. R. Lipman, reader in the Welsh School of Architecture, UWIST, has been granted a personal chair at the institute of architecture, UWIST.

Mr J. C. Dancy, principal of St Luke's College, Exeter, has been appointed to a chair of education which has been approved for establishment in 1978 within the School of Education, Exeter University.

Professor Norman March, professor of theoretical solid state physics at Imperial College, London, has been appointed to the Coulson professorship of theoretical chemistry at Oxford University with effect from October 1, 1977.

Professor Trevor Williams, head of the department of biological sciences in the University of Natal, Durban, South Africa, has been appointed professor of biology at the University of Salford. He will take up his appointment on August 1, 1977.

Recent publications

A survey of British Research in Audio-Visual Aids compiled by Susie Rodwell, head of resources at the National Audio-Visual Aids Centre, a third supplement to the 1972 edition, gives details of some of the latest projects of research into the use and effect of audio-visual aids. The projects are arranged in 10 categories as in the 1972 edition: non-projected media, still projected media, sound media, radio, film, television teaching machines and programmed books, computer assisted instruction multimedia, combined media and systems, and related research (published by the National Committee for Audio-Visual Aids in Education, price 80p).

Appointments

Lanlon

University College

Titles of fellow: Major-General Sir Leonard Atkinson; Mr B. M. Fellson; Mr H. C. H. Graves; Sir John Hanbury; Mrs Carol Handley; Professor H. G. Hopkins; Professor A. Mascoll; Mr W. R. Merrington; Mr R. B. K. Stevenson; Dr A. W. C. Taylor.

UWIST

Promotion to reader: Dr R. T. Waters (physics, electronics and electrical engineering).

York

Senior lecturer: A. K. Maynard (economics and related studies). Research fellows: R. Browning and D. C. Webb (physics); K. R. Cooke (social administration and social work); B. Williams (institute for advanced architectural studies).

Forthcoming events

"Social services and social work: a democratic problem" an inaugural lecture by Professor M. J. Brown, professor of social administration and social work, to be held on February 21 in the new physics lecture theatre, Physics Building, Queen's University of Belfast. Admission free.

* * *

"Art, music and the consumer", the third in a series of lectures on the "quality of life" will be held on February 25 in the Medical Lecture Theatre 1, University Medical School, Beech Hill Road, Sheffield. Lecturer: Mr R. F. Constantine, honorary lecturer, history of art and director of Sheffield City Art Galleries.

* * *

"The dissolution of the United Kingdom and the coming of a united Europe", the last in a series of lectures on "Britain—a society in turmoil?", will be held on February 23 at the Pavilion, Working Men's College Playing Field, Donnefield Avenue, Canons Park, Edgware.

* * *

A graphic design exhibition, displaying the work of 60 award winners of the fifth graphic design competition 1976-77, organized by the Goethe Institute together with the Central School of Art and Design will be held from February 22 until March 12 at the school, Southampton Row, London WC1. Open from 9.30 to 8.30. Admission free.

News

The Scottish Central Film Library is offering free membership for one year to customers buying a copy of the new film catalogue, price £2. It contains more than 4,000 titles of educational and documentary films from all over the world. Specialist films included in the library come from the Royal Anthropological Institute, Higher Educational Film Library and other organizations. The special offer closes on March 31.

* * *

The Scottish Film Council's new archive is interested in hearing from anyone who has any film made before the war, especially if it is 50 years old, regardless of quality or quantity. Further information from Maureen McCormack, The Scottish Council for Educational Technology, 16-17 Woodside Terrace, Glasgow G3 7XN.

* * *

The Penguin Publishing Company is, for the second year, offering the George Orwell Memorial Prize, valued £750, for an article, essay, or series of articles commenting on current cultural social or political issues anywhere in the world. The work must have been published in a United Kingdom newspaper, periodical or pamphlet in the preceding year. Submissions should be sponsored either by the editor of the publication in which the article appeared or by the organization which published it. No application will be considered unless sponsored. Closing date is March 31, and entries should be addressed to George Petre, Penguin Books Ltd, Bristol, Middlesex.

* * *

The Royal Society is also offering the Faurah Burton Award for excellence in design teaching. It is open to anyone interested in design teaching. Worth £1,000, it is designed to help the winning applicant to pursue research project, to continue publicizing the results and to provide for the management or organization of a private course. Applications must be received by no later than March 31, in the Assistant Secretary, Design, Royal Society of Arts, John Adam Street, London.

Course news

Edinburgh University's Centre for Continuing Education (CICE) is arranging a series of courses on national and international patenting and licensing for scientists who are not specialists in the fields. The first course "Patenting and Licensing for Profit" will be held on March 29-30 in the Pollock Halls of Residence. Further information from David Turpin, Course Organizer for Industrial Consultancy and Liaison, Edinburgh University.

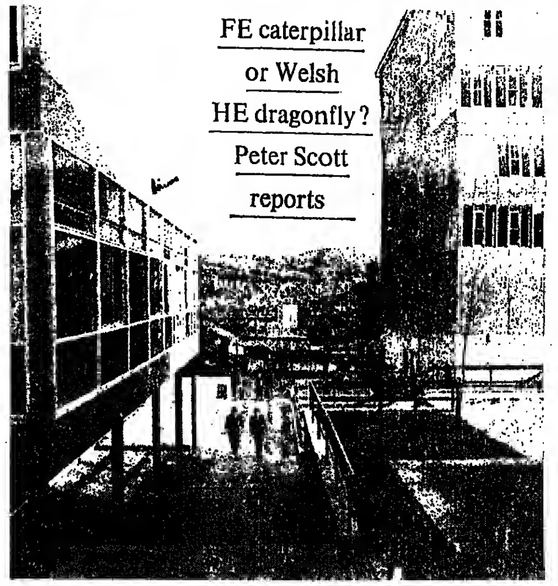
Noticeboard is compiled by Patricia Santinelli and Pauline Gamble

Polytechnic Profile-24 Wales

'Treforest School of Mines' gets the 1970s spirit

FE caterpillar or Welsh HE dragonfly?

Peter Scott reports



The Polytechnic of Wales is a polytechnic through and through. It looks like a polytechnic—the largely new and functional buildings crowded on the hillside campus just south of Pontypridd are firmly in the local authority CLASP tradition of architecture, not the monumental style preferred by universities in the 1960s. Ne vnom in this rocky industrial valley for an academic elysium.

It acts like a polytechnic—only one important degree course, in humanities, can be described as non-vocational in an institution still dominated by the engineering student by 50 per cent of full-time students. It also sells like a polytechnic—for there flourishes a practical and down-to-earth higher education entirely appropriate to the industrialized county of South Wales.

Yet to imagine the Polytechnic of Wales as a pedestrian or undynamic institution would be wrong. Student numbers have grown by 15 per cent a year, half the campus as been built, a major expansion in social sciences and arts has taken place, and Barry College of Education has been ingested. All this has been compiled into the past six years. But perhaps it is fair to say that the Polytechnic of Wales has not been among the front-runners in the race to establish a "polytechnic style" in higher education. At present the groups into fashionable modernity have on the been tentative and the direction with unwish subjects such as communications studies has been restrained. Nor does the polytechnic yet enjoy an elaborate matrix of management, with rank upon rank of deputy and assistant directors.

There are two possible explanations for his apparent underdevelopment. Perhaps it is still in the middle of metamorphosis from being a further education caterpillar into a higher education dragonfly. Or perhaps its present orientation reflects a certain Welsh scepticism about the value of well-publicized polytechnic ventures closer to London.

Probably the true explanation lies somewhere between the two. The polytechnic at present is busy extending the spider's web of degrees that lies at its centre the Diploma in Higher Education, a course designed to complement with this overall scheme existing degrees in business studies and humanities to take two examples—will be "modularized" and some created (including one in communications studies!). Nevertheless it remains a safe prediction that the Polytechnic of Wales will not be seduced completely by the glitter of instant polytechnicization.

It remains firmly embedded in the economy and political society of South Wales. Outside this environment neither its potential nor its limitations can be easily understood. Two years ago its name was changed from Glamorgan Polytechnic to the Polytechnic of Wales when the former Glamorgan College of Education, 17 miles away in Barry, was incorporated—a misleading change in many ways because the polytechnic still remains very much a Glamorgan institution. Of its students, 40 per cent live at home and only 10 per cent are from overseas.

Indeed, many local people persist in calling the "Treforest School of Mines", although the students in the mining department now make up only a tiny proportion of the whole. For it was as a private school of mines in the mountain of a local ironmaster that the Polytechnic of the present polytechnic was founded at the end of the nineteenth century.

In 1913 it became a local authority maintained college, the South Wales and Monmouthshire School of Mines. A year later the Barry college was built to train girls to become teachers. For the next 60 years the two institutions went their separate ways, the first to become a regional college and the second a mixed (in 1962) and expanding college of education with particular strengths in physical and special education. In 1970 the two came together. Treforest became Glamorgan Polytechnic on its own. Even if apparently not desired, closer and perhaps more delightful unions could have been found in Cardiff.

Treforest and Barry were eventually brought together by a combination of local government reorganization, changing national priorities in education policy prompted by the falling birth-rate, and the labyrinthine paths of South Wales politics. Four years ago Barry, still with 600 students, saw the writing on the wall. After local government reorganization it found itself in the new county of South Glamorgan (the boundaries of which had been drawn with a sharper eye to political expediency than geography). Also in South Glamorgan were two other colleges of education, at Llandeloff and Cardiff, both perhaps dearer to the hearts of Cardiff politicians. The cutback in teacher training that immediately followed turned a distant threat into a direct menace.

The desired (inevitably) merger with the university proved to be impossible (again inevitably). So Barry turned for salvation to the north, to Glamorgan Polytechnic in the new county of Mid Glamorgan. It cut traditional links with the University of Wales—a radical step in the Welsh teacher training environment—and turned to the Council for National Academic Awards. After a brief and almost entirely harmonious courtship, Treforest and Barry joined in 1975 to form the new Polytechnic of Wales.

The merger had advantages for Treforest too. The polytechnic acquired a pleasant seaside campus with plant worth £10m, and in particular sports facilities that could not be easily provided up in the valley. The number of full-time students was increased by half and most of the new students were girls which helped to correct the overwhelming male bias inherent in a heavily scientific and technological institution. It received an infusion of social science and arts students. Above all, it acquired a challenge, a catalyst for innovation in both an academic and an administrative context.

The Barry merger gave a powerful impetus to the development of arts and social sciences which in the former narrower polytechnic had been rather overshadowed by science and in particular by engineering. It helped to give coherence to an area which although growing fast before 1975 remained rather incoherent. The fruit of this has been the still embryonic BA scheme. At present only one degree, the Bachelor of Education, leads from the two-year diploma, but eventually it will be joined by five others—in humanities, business studies, public administration, combined sciences and communications studies.

Now the Government's decision to close down teacher training in the polytechnic, announced by Mrs Shirley Williams less than a month ago, has "thrown a dirty great bomb into the middle of all this", in the words of Mr D. J. Phillips, chairman of the governing body. Not facility. Both the director, Dr W. R. Jones, and his deputy, Mr Clem Roberts, the former principal of Barry College, agree that this decision may possibly jeopardize other courses in the polytechnic. Dr James explained that fewer students would mean fewer specialist teachers and so might lead to the removal of certain options (for example, in the humanities degree).

The DES's decision has been received with dismay, and some incredulity, in the polytechnic. Mr Roberts asked how the Government could decide to close down teacher education in an institution with 20 or so degree courses while allowing it to remain in small, marginally viable institutions, some of which had more than one degree—and that the BEd. "This is not just cutting out teacher training; it is invalidating a great deal of the hard work done over three years", he said.

The loss of teacher training would be a serious blow to the polytechnic—but not a fatal one. The predominant science and engineering component will be almost untouched, and even arts and social sciences have a momentum of their own that will only be narrowly deflected by events at Barry. Perhaps it is because the DES is well aware of this that it decided to close Barry rather than other more vulnerable colleges.

The core of the polytechnic is still in the engineering faculty. It has 991 out of the 2,367 full-time and sandwich students overall, and is still growing fast with 112 more students than last year.

The Department of Civil Engineering and Building is typical. It has 225 students on its BSc course in civil engineering, 50 on an HND and 40 on an HNC in the same subject. An HND in building is already offered and a new degree in building is planned. The department is also hoping to offer a part-time MSc in civil engineering in 1978. This is the bread and butter of the polytechnic—and it is all achieved at a staff/student ratio of 10 to one.

On the other side of the fence, in social sciences, the department of business studies is typical of the dynamic development that has taken place in the polytechnic since 1971 to balance the predominant commitment to science and technology.

Then the department had 22 academic staff; today it has 43 staff, 340 full-time and sandwich and 250 part-time students. Mr Gevin Thomas, the acting head of the department, explained that the most remarkable feature of this period had been the shift from sub-degree to degree courses. The business studies degree with more than 200 students is in its fourth year and a new part-time degree in public administration has been approved by the CNAA. These are complemented at the bottom by a comprehensive range of HNCs and HNDs and at the top by an extremely successful postgraduate diploma in marketing.

Business studies and civil engineering, together with estate management and humanities, are the most popular courses in the polytechnic as potential students, according to Dr James. Less popular has been the core degree in chemistry offered at Treforest for which the entry standard is possession of an HND which Dr Jones described as "a big disappointment". The main difficulty has been for interested students to obtain a second grant from their local authorities.

Some measures have been taken to strengthen the science department in the last two years. Dr W. O. George, the head, explained that after the Barry merger the small and barely viable departments of chemistry and physics at Treforest and science at Barry were amalgamated to form a new department. To balance the chemistry degree for which entry standards are perhaps too high the new degree in combined science (which will offer seven fields—chemistry, computerism, earth sciences, environmental sciences, life sciences, mathematics and statistics, and physical sciences) will demand only one science A level as an entry qualification.

Yet in educational terms the Polytechnic of Wales remains a relatively conservative institution. The new law degree will be organized on mainly traditional lines and while there are plans for developments in the behavioural sciences, Dr James is quick to add, "but not perhaps in sociology". The polytechnic's academic plan is at present being revised but the director does not expect the institution's traditional balance will be modified—two parts engineering, one part science and mathematics, and two parts in social sciences and arts (this disregards the polytechnic's commitment to teacher education, which is now of course in doubt).

The merger with Barry stimulated the polytechnic in another direction. As Mr John Hanson, chairman of the social sciences and arts faculty and the polytechnic's academic staff development officer, explained: "The polytechnics that only changed their name on designation, like Glamorgan, in the long term were not a disadvantage. The others had to rethink their organization at the start."

In 1975 it was decided to have a two-year "settling-down period" and an interim organization was created. Under Dr James and his two deputies, Dr Rohert and Mr P. J. Hybart, there are four part-time executives: Mr G. T. Bolus, chairman of the engineering faculty and polytechnic academic planning officer; Mr D. L. Green, who combines physical resources officer of the polytechnic with the chairmanship of the science faculty; Mr Phillips who is DipHE course coordinator; and Mr Hanson.

Whether the polytechnic will choose a more intensive—and expensive—management structure with parental assistant directors with functional responsibilities or stick with its present rather traditional mix of strong departments and weak faculties has still not been decided. Staff in the science and engineering areas seem largely content with the present system. Those in the social sciences and arts where subject boundaries are less clearly demarcated favour change—although Mr Thomas did admit that many students might suffer a loss of identity. The most likely outcome as always is a compromise: the present structure left largely intact but with a strengthened level of faculties superposed.

Shortly before the merger with Barry the polytechnic's maintaining [illegible] authority was cut in size by two-thirds, from Glamorgan to the much smaller Mid Glamorgan. In practice the combination of large polytechnic and small authority has led to conflict—but not openly, as the Polytechnic of Wales. Dr James said that they had received "a very fair deal" from the county.

Although the polytechnic's budget for next year had not been finally fixed, he believed that it would still show some growth or at time when local government expenditure as a whole was declining—mainly because of the momentum of past obligations. "A cut back in recurrent expenditure will hurt but will not be as disastrous as it would have been a few years ago", he added.

The reason is obvious to any visitor to the Treforest campus. The Polytechnic of Wales is perhaps the closest there is in Britain to a purpose-built polytechnic. Since it was designated four halls of residence for 400 students (there are also 350 places at Barry), a student union, a library with 130,000 volumes and 674 places for readers, a seven-storey civil engineering building, a new business studies and management block, and a quadrangle housing mathematics and computer science and electrical engineering have been built.

In spite of the gifts that have been showered on it Dr James still believes that the polytechnics should be given a national role (but without severing all links with local government). However, his motives are rather different from those normally ascribed to polytechnic directors. His view does not arise out of any dissatisfaction with the treatment the polytechnic has received at the hands of Mid Glamorgan but out of apprehension that other local authorities (South Glamorgan?) may discriminate against it in favour of their own newly established institutes of higher education. Dr James would like to see the polytechnic made directly responsible to any future Welsh Assembly on the pattern of the Scottish central institutions.

The decision to close down teacher training at Barry bears out Dr James's apprehension. Either the polytechnic is treated no just one among several institutions of higher education in the region or it is regarded as the flagship of the public sector in South Wales. The danger at present is that the utopias of the DES and the rivalry of local politicians will favour the first, while the polytechnic has the potential to develop into the second.

The Polytechnic of Wales is not a charismatic institution. One gets no impression of being among the skirmishers of higher education progress. It is a solid, pragmatic, perhaps slightly conservative institution. Its apparent under-development is probably an advantage, not a disadvantage. While others rushed ahead along the road of innovation vainly attempting to catch up with the ephemeral tastes of the late 1960s and early 1970s, the Polytechnic of Wales has advanced more cautiously along a more traditional road—but one which is perhaps more in line with the spirit of the late 1970s.

Open University programmes February 19 to 25

Saturday February 19

BBC 2

7.40 People and organisation: BBC interview (1) (D1302) prog 11; Making sense of society: Crime (D101) prog 23.
8.25 Technology Foundation Course: Satellite Case Study (T100) prog 23).
8.55* An introduction to materials: X-ray diffraction (A282) prog 3; Topics in Pure Mathematics: Cardinal Numbers and Their Universal Property (MA2G) prog 3).
9.45* Mechanics and applied calculus: Modelling with Vectors (MST121) prog 3).
10.15 The Developmental of Instruments and their music: An introduction to the Organ (AA304) prog 11).
11.00 Science Foundation Course: Sources and Bibliography; The Research Project (SA100) prog 23).
11.50 Structures, bonding and the periodic law: Stoichiometric Methods of Structure Determination (SM1) prog 3).

RADIO 4 (VHF)

Men on North Scottish and Welsh Transmitters

12.10* Technology for Teachers: Case Study; Project Method (TA271) prog 1).
12.40 Historical flats and the social sciences: The Question Why (AN01) prog 23).
13.00 Music Explorations: The Dimension Theorem (AA301) prog 23).

RADIO 3 (VHF)

8.05 Drama: The Designer (AA307) prog 3).
8.35 Schooling and society: Schooling and Capitalism—1 (E202) prog 1).
9.45 Mathematics Foundation Course: Mathematical Models (MA100) prog 23).
7.10 Arts Foundation Course: Work, Music and Folksong (AA100) prog 23).
7.35 Science Foundation Course: Biological Rhythms (SD100) prog 23).

RADIO 4 (VHF)

Men on North Scottish and Welsh Transmitters

9.05 Open Forum—X.
9.30* History of Architecture and Design (1905-1930): The Machine and Decorative Art in the 1920s (AA305: prog 23).
9.40* The Age of Revolutions: Tom Paine (A202: prog 3).
10.00* The Nineteenth-century Novel and its Legacy: Victoria Jane Austen (AA303: prog 1).
10.20* The Development of Instruments and their Music: An Introduction to the Orchestra (AA304: prog 3).
10.40* The Development of instruments and their Music: An Introduction to the Harpsichord (AA304: prog 3).
11.00* Decision Making in Britain: What is Government? (D102: prog 1).
11.20* Mathematics: Introducing the Course (MA100: prog 1).
11.40* Mathematics: Inequality: What is Inequality (D302: prog 1).
12.00* Consistency and Restoration: The Age of Discovery (AA301: prog 1).
12.20* Mathematics: Introducing the Course (MA100: prog 1).
12.40* Mathematics: Inequality: What is Inequality (D302: prog 1).
14.00* Consistency and Restoration: The Age of Discovery (AA301: prog 1).
14.20* The Use of Libraries—I.
14.40* The Use of Libraries—I.

RADIO 2 (VHF)

Replacement programmes

24.00* The Nineteenth-century Novel and its Legacy: Victoria Jane Austen (AA303: prog 1).
00.20† The Development of Instruments and their Music: An Introduction to the Orchestra (AA304: prog 3).
00.40* Mathematics: Introducing the Course (MA100: prog 1).

Sunday February 20

BBC 2

7.40 Arts Foundation Course: Art and Artifact (A100: prog 4).
8.05 Science Foundation Course: Observation and Measurement (S100: prog 3).
8.30* Mathematics Foundation Course: Mathematical Things (M100: prog 1).
8.55* Telecommunication systems: Filters and Waveguides (T322: prog 1).
9.20 Comparative Physiology: Introduction to the Animal Kingdom (S322: prog 1).
9.45 History: Earth Materials (D220: prog 23).
10.10* Consistency and Restoration: An Introduction (AA301: prog 1).
10.35* Decision Making in Britain: Central Government (D102: prog 1).
11.00 Drama: Antigone (AA307: prog 3).
11.30 Open Forum—12: Student Costs and Grants in Focus.
12.15* Health and Society: Inequality: A Woman's Work is Never Done (prog 1).
13.05 Curriculum Design and Development: An Introduction to Education (E353: prog 1).
13.30 Elementary Mathematics for Science and Technology: An Introduction (MST121: prog 6).

RADIO 3 (VHF)

7.00 Making Sense of Society: What is Crime? (D102: prog 2).
7.20 Numerical Computation: Errors and Iteration (M351: prog 1).
7.40 Technology Foundation Course: Education by Satellite in Brazil (T100: prog 23).

RADIO 4 (VHF)

8.10 Microcomputers: Microcomputers and the Revolutions (A262: prog 1).
8.30 Drama: Electra (AA307: prog 3).
9.30* Drama: Electra (AA307: prog 3).

RADIO 2 (VHF)

24.00* The Art of Revolutions: Tom Paine
00.20† Consistency and Restoration: The Age of Discovery (AA301: prog 1).
00.40* History of Architecture and Design (1905-1930): The Machine and Decorative Art in the 1920s (AA305: prog 23).

Monday February 21

BBC1

8.40 Principles of Chemical Processes: Chemical Engineering and Industry (B1294: prog 1).
7.55 Technology and Development: Underdeveloped Economies (T100: prog 21).
7.30 Urban Development: London 1650-1750 (D301: prog 21).

BBC2

8.40 International Politics and Foreign Policy: In Search of Zion—Israel, the Jewish National State (D353: prog 1).
7.00* Physiology of Cells and Organisms: Drugs and their Ultrastructure (S322: prog 1).
10.55* Structure, bonding and the periodic law: Stoichiometric Methods of Structure Determination (SM1: prog 3).
11.20* Mathematics in Contemporary Life: Modelling Things Up (M101: prog 1).
17.20* Technology Level 1: Tools of the Trade (T101: prog 1).
17.45 Introduction to Engineering Mechanics: Statics (T100: prog 1).
18.10* Science Foundation Course: Ideas for Man's Senses (S100: prog 21).

RADIO 3 (VHF)

8.55 Drama: Electra (AA307: prog 3).
9.20 Schooling and society: Schooling and Capitalism—2 (E202: prog 2).
9.45 Mathematics Foundation Course: Mathematical Models (MA100: prog 23).
10.10* Mathematics: Introducing the Course (MA100: prog 1).
10.35* Technology Foundation Course: Satellite Case Study (T100: prog 23).

RADIO 2 (VHF)

0.00 Personality and Learning: Teachers' Ideas about Personality and Learning (E353: prog 1).
0.20 Twentieth-century Poetry: Hardy and the Ballad (AA302: prog 1).
0.40 Ancient and Medieval Music: An Introduction to the Musical Styles and Social Uses: Dance Episodes of All Sorts (A282: prog 11).
17.45 Mathematical Models: Models in Decision Making in Britain (D102: prog 1).
18.05 Mathematics: Introducing the Course (MA100: prog 1).
18.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
18.45 Drama: The Designer (AA307: prog 3).
19.05* Mathematics: Introducing the Course (MA100: prog 1).

Replacement programmes

24.00* Technology Foundation Course: Satellite Case Study (T100: prog 23).

RADIO 3 (VHF)

0.00 Personality and Learning: Teachers' Ideas about Personality and Learning (E353: prog 1).
0.20 Twentieth-century Poetry: Hardy and the Ballad (AA302: prog 1).
0.40 Ancient and Medieval Music: An Introduction to the Musical Styles and Social Uses: Dance Episodes of All Sorts (A282: prog 11).
17.45 Mathematical Models: Models in Decision Making in Britain (D102: prog 1).
18.05 Mathematics: Introducing the Course (MA100: prog 1).
18.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
18.45 Drama: The Designer (AA307: prog 3).
19.05* Mathematics: Introducing the Course (MA100: prog 1).

Replacement programmes

24.00* Decision Making in Britain: What is Government? (D102: prog 1).
00.20† Mathematics: Introducing the Course (MA100: prog 1).
00.40* Mathematics: Inequality: What is Inequality (D302: prog 1).

Tuesday February 22

BBC 1

6.40 Problems Modelling: Student Activity (T431: prog 1).
7.05* Biology: Earth Materials 1 (S237: prog 1).
7.30 Analysis: Numbers (MST121: prog 1).

BBC 2

7.55 Modelling by mathematics: Heating Chamber Model (MST121: prog 1).
7.30* Computing and Quantitative Methods: The Annual Allocation (T431: prog 1).
10.05* Health and Organizations: BBC Television Programme (T301: prog 1).
17.20 Technology Level 1: Tools of the Trade (T101: prog 1).
18.10* Living Literature: The Public Voice (AA303: prog 1).
18.30* Science Foundation Course: Information and Reasoning (S100: prog 23).

RADIO 3 (VHF)

8.55 Early Psychology: Regarding the Homosexual (A822: prog 1).
9.20 Science and the use of technology: Food Technology in Space (T301: prog 1).
9.40 Patterns of Inequality: Attitudes and Ideologies (D302: prog 23).
10.00 Science and Society: Science and politics: Lysenko and Genetics (A322: prog 2).
10.25* Mathematics: Introducing the Course (MA100: prog 1).
10.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
11.05* Mathematics: Introducing the Course (MA100: prog 1).
11.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
11.45* Mathematics: Introducing the Course (MA100: prog 1).
12.05* Mathematics: Inequality: What is Inequality (D302: prog 1).
12.25* Mathematics: Introducing the Course (MA100: prog 1).
12.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
13.05* Mathematics: Introducing the Course (MA100: prog 1).
13.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
13.45* Mathematics: Introducing the Course (MA100: prog 1).
14.05* Mathematics: Inequality: What is Inequality (D302: prog 1).
14.25* Mathematics: Introducing the Course (MA100: prog 1).
14.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
15.05* Mathematics: Introducing the Course (MA100: prog 1).
15.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
15.45* Mathematics: Introducing the Course (MA100: prog 1).
16.05* Mathematics: Inequality: What is Inequality (D302: prog 1).
16.25* Mathematics: Introducing the Course (MA100: prog 1).
16.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
17.05* Mathematics: Introducing the Course (MA100: prog 1).
17.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
17.45* Mathematics: Introducing the Course (MA100: prog 1).
18.05* Mathematics: Inequality: What is Inequality (D302: prog 1).
18.25* Mathematics: Introducing the Course (MA100: prog 1).
18.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
19.05* Mathematics: Introducing the Course (MA100: prog 1).

Replacement programmes

24.00* Mathematics: Inequality: What is Inequality (D302: prog 1).
00.20† Mathematics: Introducing the Course (MA100: prog 1).
00.40* Mathematics: Inequality: What is Inequality (D302: prog 1).

Wednesday February 23

BBC 1

6.40 Elementary Mathematics for Science and Technology: Introducing Vectors (MST121: prog 1).
7.05 Technology: Land and Water (T100: prog 1).
7.30 Technology: Land and Water (T100: prog 1).

BBC 2

6.40* Materials under Stress: Tools of the Trade (T101: prog 1).
7.00 Economics: Educational Inquiry: An Empirical Approach (E353: prog 1).
7.30 Arts Foundation Course: Work, Music and Folksong (A100: prog 1).
10.05* History of Architecture and Design (1905-1930): The Machine and Decorative Art in the 1920s (AA305: prog 23).
10.30 National Examinations Board in Supervisory Studies: Introduction to Engineering (T431: prog 1).
10.55* Structure, bonding and the periodic law: Stoichiometric Methods of Structure Determination (SM1: prog 3).
11.20* Mathematics in Contemporary Life: Modelling Things Up (M101: prog 1).
17.20 Technology Level 1: Tools of the Trade (T101: prog 1).
17.45* Introduction to Engineering Mechanics: Statics (T100: prog 1).
18.10* Science Foundation Course: Ideas for Man's Senses (S100: prog 21).
18.35* Technology Foundation Course: Satellite Case Study (T100: prog 23).

RADIO 3 (VHF)

0.00 Personality and Learning: Teachers' Ideas about Personality and Learning (E353: prog 1).
0.20 Twentieth-century Poetry: Hardy and the Ballad (AA302: prog 1).
0.40 Ancient and Medieval Music: An Introduction to the Musical Styles and Social Uses: Dance Episodes of All Sorts (A282: prog 11).
17.45 Mathematical Models: Models in Decision Making in Britain (D102: prog 1).
18.05 Mathematics: Introducing the Course (MA100: prog 1).
18.25* Mathematics: Inequality: What is Inequality (D302: prog 1).
18.45 Drama: The Designer (AA307: prog 3).
19.05* Mathematics: Introducing the Course (MA100: prog 1).

Replacement programmes

24.00* Decision Making in Britain: What is Government? (D102: prog 1).
00.20† Mathematics: Introducing the Course (MA100: prog 1).
00.40* Mathematics: Inequality: What is Inequality (D302: prog 1).

Thursday February 24

BBC 1

6.40 The Development of the Novel: Jane Austen's Literary Manners (A303: prog 1).
7.05* Drama: Desert Venus (AA307: prog 1).

BBC 2

1.30 Inquiry and Information: Information Sources (E353: prog 1).
10.55 Technology Foundation Course: Satellite Case Study (T100: prog 23).
17.20* Mathematics: Introducing the Course (MA100: prog 1).
17.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
18.10* Mathematics: Introducing the Course (MA100: prog 1).
18.35* Mathematics: Inequality: What is Inequality (D302: prog 1).
19.05* Mathematics: Introducing the Course (MA100: prog 1).

RADIO 3 (VHF)

0.00* Mathematics: Introducing the Course (MA100: prog 1).
0.20 Analysis: Sets (MST121: prog 1).
9.20 Analysis: Sets (MST121: prog 1).
9.40 Analysis: Sets (MST121: prog 1).
13.05 Analysis: Sets (MST121: prog 1).
13.25 Analysis: Sets (MST121: prog 1).
13.45 Analysis: Sets (MST121: prog 1).
14.05 Analysis: Sets (MST121: prog 1).
14.25 Analysis: Sets (MST121: prog 1).
14.45 Analysis: Sets (MST121: prog 1).
15.05 Analysis: Sets (MST121: prog 1).
15.25 Analysis: Sets (MST121: prog 1).
15.45 Analysis: Sets (MST121: prog 1).
16.05 Analysis: Sets (MST121: prog 1).
16.25 Analysis: Sets (MST121: prog 1).
16.45 Analysis: Sets (MST121: prog 1).
17.05 Analysis: Sets (MST121: prog 1).
17.25 Analysis: Sets (MST121: prog 1).
17.45 Analysis: Sets (MST121: prog 1).
18.05 Analysis: Sets (MST121: prog 1).
18.25 Analysis: Sets (MST121: prog 1).
18.45 Analysis: Sets (MST121: prog 1).
19.05 Analysis: Sets (MST121: prog 1).

Replacement programmes

24.00 Analysis: Sets (MST121: prog 1).
00.20 Analysis: Sets (MST121: prog 1).
00.40 Analysis: Sets (MST121: prog 1).

Friday February 25

BBC 1

9.40 The Development of the Novel: Jane Austen's Literary Manners (A303: prog 1).
7.05 Drama: Desert Venus (AA307: prog 1).
7.30 Technology: Land and Water (T100: prog 1).

BBC 2

1.40 Consumers and Money: Consumer Protection (E353: prog 1).
9.05 Technology: Land and Water (T100: prog 1).
7.30 Technology: Land and Water (T100: prog 1).
10.55 Technology Foundation Course: Satellite Case Study (T100: prog 23).
17.20* Mathematics: Introducing the Course (MA100: prog 1).
17.45* Mathematics: Inequality: What is Inequality (D302: prog 1).
18.10* Mathematics: Introducing the Course (MA100: prog 1).
18.35* Mathematics: Inequality: What is Inequality (D302: prog 1).

RADIO 3 (VHF)

0.00* Mathematics: Introducing the Course (MA100: prog 1).
9.20 Analysis: Sets (MST121: prog 1).
9.40 Analysis: Sets (MST121: prog 1).
13.05 Analysis: Sets (MST121: prog 1).
13.25 Analysis: Sets (MST121: prog 1).
13.45 Analysis: Sets (MST121: prog 1).
14.05 Analysis: Sets (MST121: prog 1).
14.25 Analysis: Sets (MST121: prog 1).
14.45 Analysis: Sets (MST121: prog 1).
15.05 Analysis: Sets (MST121: prog 1).
15.25 Analysis: Sets (MST121: prog 1).
15.45 Analysis: Sets (MST121: prog 1).
16.05 Analysis: Sets (MST121: prog 1).
16.25 Analysis: Sets (MST121: prog 1).
16.45 Analysis: Sets (MST121: prog 1).
17.05 Analysis: Sets (MST121: prog 1).
17.25 Analysis: Sets (MST121: prog 1).
17.45 Analysis: Sets (MST121: prog 1).
18.05 Analysis: Sets (MST121: prog 1).
18.25 Analysis: Sets (MST121: prog 1).
18.45 Analysis: Sets (MST121: prog 1).
19.05 Analysis: Sets (MST121: prog 1).

Replacement programmes

24.00 Analysis: Sets (MST121: prog 1).
00.20 Analysis: Sets (MST121: prog 1).
00.40 Analysis: Sets (MST121: prog 1).

Clive Cookson reports on the progress of the GEE and SISCON "social awareness" schemes

Two science sisters take very different paths

The first two or three years of the present decade saw a notable burst of activity aimed at broadening the science and engineering curriculum in universities and polytechnics. The Nuffield Foundation in particular started several projects to make these students more aware of the social context of their work.

Two of the most ambitious schemes hatched under Nuffield's financial wing were General Education in Engineering (GEE) and Science in a Social Context (SISCON). Both have thrived, and the latter recently flew from the Nuffield nest to find sponsorship from the Leverhulme Trust.

They had the same original objective—to produce teaching materials to broaden the curriculum—but this common aim has taken the two sisters down very different paths.

SISCON is providing teaching/learning material in self-contained units, which are distributed in book form. About half are written by individual authors and half by pairs or groups.

The programme will take a major step forward next month when Butterworths begin publishing and marketing their units. They will be released twice a year in batches of six. (The first titles range from *Technology and Survival* by Ernest Braun and David Collingridge of Aston University, to *Darwin's Double Helix: The Biological Theme in Science Fiction* by Leonard Isaacs of Michigan State University.)

The main thrust of GEE, on the other hand, is directed towards encouraging and supporting engineering undergraduates' "socio-technical" projects. This is felt to be a more productive approach than injecting into engineering studies parallel courses of compensatory social education, which suffer from two serious weaknesses. First, it is difficult to get good people to teach them because of their low prestige, sunk further by the hostility of pure engineers; and, second, the links between the design of physical systems and issues of social policy are frequently not made clear to students—bits and pieces of half digested subject matter litter their minds.

Many academic engineers will agree that the most important thing they teach is problem solving. Provided that socio-technical projects are formulated as problems and not easily identified as belonging exclusively to another profession or discipline, lecturers may accept their validity and the challenge of supervising them.

The choice of project is left to the individual supervisor and his student(s), but GEE provides a good range of supporting services. A projects register and library of final reports is maintained at Imperial College, London. Workshops for project supervisors are held twice a year (the next one will be at Corpus Christi College, Oxford, from March 29 to April 1). A supervisor's manual, outlines of possible projects and packets of related resource materials are available. There is a standard grant of £20 to cover the cost of the project report, and outstanding work can win prizes up to £250.

GEE projects normally work on the "micro-level", says the programme coordinator, Dr Frank Swenson, of Stirling University, whereas *SISCON* operates on the level of public attitudes and policy.

The history and structure of GEE are rather confusing. In the early days it encompassed a wide range of activities, and some SISCON-style teaching materials were produced, including an interesting study of the problems facing an entrepreneur who wishes to start an engineering firm. But today GEE's energies are concentrated on the projects programme, whose title was recently changed from Urban Crisis 2,000 to Socio-Technical Engineering Projects Programme (it was to be known by its acronym STEPP until it was realized that this might be confused with STEP, the Science Teachers Education Programme).

The extension of the programme beyond urban problems coincided with the end of the three-year secondment from Aston University of GEE's coordinator Dr David Brancher. The active coordinating role has passed to Dr Swenson, though Dr Brancher remains closely involved.

In theory the GEE approach should fit in well with the structure of BSc engineering courses in British universities, in which one third of the final year is normally devoted to student projects. "This is the only liberal element within an engineer's education", says Dr Brancher, "but it is surprisingly free in some departments".

The majority of the 98 GEE projects registered so far have been slotted into the final year in this way. However, Mr John Maddox, director of the Nuffield Foundation, points out that some engineering departments insist that third-year projects must be 100 per cent technical, and in these cases GEE projects have had to be squeezed into the second year.

None of the half dozen Nuffield-inspired programmes to reform areas of higher education caught on with anything like the enthusiasm generated by Nuffield Science in schools. As Mr Maddox says, academics are much too individualistic to accept broad changes in the curriculum in the same way as schoolteachers.

GEE faced a particularly hard struggle because "engineering departments are the most conservative of all", he says.

SISCON started out with a wider market and this has grown beyond science departments to reach sociologists, political scientists and economists. To some extent, therefore, the reverse role of bringing the issues of natural science and technology to social scientists has been added to SISCON's original aim of widening the scientific curriculum.

The written units, which are designed to occupy a third of a student's time for three weeks, constitute SISCON's material output but the project also operates on a larger scale, encouraging the design of new science degree courses with a social emphasis.

The dozen universities and polytechnics that make up the SISCON consortium all offer such courses. Examples include liberal studies in science at Manchester University, integrated science at Stirling University, and science and society at North East London Polytechnic.

Unity has not been one of SISCON's strengths. Some members felt that a few of the early units were too poor in quality to be published, and there have been keen arguments about the direction in which the project should be moving.

Professor Michael Gibbons of Manchester University put it this way when he took over from Dr Bill Williams of Leeds University as SISCON coordinator last year: "Not surprisingly, because they represent the first tentative offerings to a wider public of our individual teaching, the units are uneven—both in terms of intellectual rigour and style. None the less we have now a much better grasp than formerly of the range of materials being taught within the SISCON net.

"On the other hand this greater awareness has not brought much in the way of unity to the SISCON organization. There is still as wide a range as ever of viewpoints concerning the role of SISCON in courses in higher education. This is no bad thing, provided the diversity does not lead to factions, which I fear have occurred in some cases. It appears that there is a sharp difference in the perception of the role of SISCON between the universities and the polytechnics and other institutions of further and higher education.

"In addition the claim is made that the former dominate the SISCON council, thereby imposing their will. Be that as it may, steps are now being taken to broaden the base of the council to include a wider range of representatives. I hope that this will help to break down some of the misunderstanding that has developed."

SISCON has spent about £40,000 so far, and at least £40,000 more will be available over the next three years. There are currently two full-time SISCON research fellows, Dr Glyn Ford at Manchester and Dr Russell Moseley at Sussex, and the project has enough money to finance a further four research fellows, but the council decided recently to support only two more fellows and to spend the extra funds persuading as many higher education institutions as possible to join the project.

For GEE the short-term priority is to make sure every engineering department in the country knows that the programme is still going. As Dr Swenson said, some people thought it finished when its initial three years' Nuffield funding ran out last November. Now letting them know that it is going on again, with renewed support for another three years, is a major task.

Some of the 98 GEE projects involving 291 engineering students from 25 universities and polytechnics would doubtless have been carried out whether or not GEE existed, but the work has here ended up isolated from all the other GEE projects in the various supervisors' departments. Through GEE, good practice is made available as a basis for new work.

"I think GEE met a real need, in forcing discussion and action," said Dr Swenson. "A lot of people were doing related things without contact."

Projects do not need a high technical content to qualify. Some have essentially orthodox technological projects with perhaps a 10 per cent social element, says Dr Ford. Others have been 75 per cent technical. Topics have ranged from a study of the engineering environmental implications of modernizing the lower section of the Grand Union Canal, to an analysis of the performance of local government since its reorganization in 1974.

SISCON and GEE keep in touch with one another's activities, and ruling bodies have common members, such as Dr Braun, so enthusiasts attend both GEE and SISCON meetings. But the two sisters are likely to continue their own separate paths.

New Australian universities 3—Murdoch

Many stars born in these trunk courses?

In the third and last of this series Peter Wilby looks at Western Australia's newest institution

The growth prospects for Murdoch, the new university in Western Australia, are marginally brighter than its sister, Griffith University in Queensland. By 1978, it expects to have 2,200 equivalent full-time students (instead of the 2,800 originally planned) while Griffith will have only 1,300 in 1979.

This is partly because, unlike Griffith, it has a scheme for external correspondence studies. But, in the long-term, the outlook for Murdoch is perhaps less bright, because the projections for increases in higher education enrolments are lower in Western Australia than in Queensland.

Murdoch has six schools: environmental and life sciences, education, human communication, inquiry, and veterinary studies. Where Griffith has chosen to make the schools cohesive, self-contained units, Murdoch's academic structure emphasises links between the schools. A quarter of the student's first year, for example, is occupied by "trunk courses" (there is no end to the terminological ingenuity of the new universities) which are offered across the whole university.

The choice is between perception, symbol and myth (which ranges from biology to philosophy), world in transition (including insights from literature, social science and physical science), and energy and life systems.

The description of "perception, symbol and myth" echoes the thinking behind Sussex University's language and values preliminary course. At the end of this course, students are expected to be able to view the acquisition of knowledge in terms of the inter-relationship between perception, codification, communication, myths and theories; to have extended and examined their own value systems, acquired knowledge as well as intellectual inquiry, increased their ability to express themselves lucidly; to adopt a sympathetic attitude towards areas with which they do not necessarily agree; to have established for themselves a sound basis for future studies."

For the remaining three-quarters of the first year, students have a choice of courses that will meet the prerequisites for part two programmes. The idea is that they should leave themselves some room for manoeuvre. Some of the part two programmes are interdisciplinary, frequently transcending the schools: Chinese studies, communication studies, environmental sciences, population and world resources. Then there are human development (combining aspects of biology, psychology and sociology) and peace and conflict studies. The latter is dubbed Irenology (after Irene, the Greek goddess of peace) and combines the insights of law, psychology, anthropology, sociology, economics and history.

Most intriguing of all, Murdoch programme in general studies which "provide students at least an introductory view of both scientific and non-scientific inquiry and on the development of skills".

There are also a number of specialist programmes—chemistry, economics, history and physics, for example. But it is considered of the need to prevent overcrowding on part one. The first year are a university responsibility, part two responsibility—there is a board of studies. And the prerequisites set for the two programmes must not exceed those of the student's "non-trunk courses". "Those who are worried about" said Bob Tonkin, assistant secretary (academic), "are given recommendations in addition to prerequisites."

Brian Hill, professor of education, says that if anything the interdisciplinary nature of the "trunk courses" have been strengthened since the first year. "What has come so far", he added, "is that schools have put staff into trunk courses not just peripheral resources. But my concern is that they are coordinated by sufficiently senior people. It has killed common first year courses in the past that they have been treated as a dumping ground for junior lecturers."

THE TIMES HIGHER EDUCATION SUPPLEMENT 25.2.77

David Walker asks whether the regional conferences can really produce any results

Too many hushed voices as the speeches begin?

Is "the great debate" going to be just another long-winded affair of educational voices, reading set speeches from entrenched positions listened to by a Government which has already decided on what it plans to do in the schools?

This is one cynical and widely-held view of the series of regional conferences that begins with a day long meeting in Newcastle today and continues through seven other regional centres till the end of March. There is some justification for it, too.

Genuinely regional elements could well be sparse, as key speakers—such as Dr Bill Taylor of the London University Institute of Education and Mr Ray Jackson of the TUC in Newcastle—have been drafted in from the national pool. The teachers' trade unions will here their people—mainly of executive committee level—speaking to prepared briefs. Interruptions from the unorganized, such as parents, who have been invited to attend will need to be well stage managed if the bulky agenda is to be got through.

Yet public relations exercise or not, the great debate is a startling departure from Department of Education traditions. The form it is taking bears a family resemblance to the recommendation of Miss Janet Fookes's House of Commons Committee for a national forum for discussing educational policy. In principle, the series of meetings could be what the Prime Minister ordered in his speech at Ruskin College last October.

It was in that speech that a number of educational discontents of recent years crystallized. There was the growing critique of "child-centred" methods of teaching younger schoolchildren mixed with a general, and formally unsubstantiated, concern about "basic standards of numeracy and literacy". The latter merged with the reluctance of the business and industrial world of their discontent with both the supply and quality of school leavers and graduates seeking jobs.

During 1976 hints had been dropped about the need for government to enter once again the "secret garden" of the curriculum which it was said was being monopolized by the teachers. Criticisms of professional power were stimulated by the sacking of the head of William Tyndale School in London, and a widespread but again unproven assertion that the expenditure of teaching in the 1960s had resulted in a number of people unqualified both in their formal skills and in their motives.

There were parallel administrative concerns, too. Miss Fookes's committee urged a more active role for the DES and on the part of the Secretary of State. The recommendations of the Schools Council, and by implication its composition, were milked at from many sides over the issue of so-called "examination overload" to replace GCE O level and the Certificate of Secondary Education.

But the Prime Minister spoke moderately. He pointed out that the curriculum and standards in the schools and a wider sense of unease about how far the educational system—not excepting the universities and polytechnics—served the needs of the economy. The economic recovery of the country was the Government's *sine qua non*.

Mrs Shirley Williams, the Secretary of State, then energetically got together the established educational interests to work out an agenda for the debate. It turned out to be a debate about the schools, not education in the wider sense, for there is no provision for discussion of the provision for adults, higher education as such, and then their education only peripherally.

This agenda, as conceived by the DES, was issued last week in the shape of a longish paper, *Educating Our Children*. It claims to be simply a background document not representing Government thinking, but it would take a particularly strong-willed pundit not to find in it a number of hints about present DES policy. It starts with obeisance to the achievements since the 1944 Education Act: growth, more teachers, more children taking and passing public examinations at 16 and 18.

It is then divided—like the daylong debate—into discussion of the school curriculum up to the age of 16, the assessment and monitoring of standards in schools, the education and training of teachers, and the general relationship of school and working life. Points of focus are on proposals for pupils in post a minimum standard in a prescribed number of basic subjects: mathematics, English, science and a foreign language; on the need for more in-service training of teachers; and on better education about careers.

The document unfolds all discussion of institutions and methods of organizing education. The comprehensive organization of secondary schools is not mentioned, nor are the various ways of tying teacher education in with polytechnics, universities.

After initial hesitation, all the main teacher unions have come round to active participation in the great debate, not least because it offers a chance to talk. But the largest organization of primary and secondary teachers, the National Union of Teachers, has not been entirely won over.

The NUT point to Mrs Williams's decision to stop the examination changes agreed by the Schools Council and evidence that, great debate or not, policy-making by the DES has continued apace. Mr Fred Jarvis, NUT general secretary, said last week that he wondered about the debate's purpose.

Officially, the Government will publish a consultative document in the summer containing proposals for further action. Mrs Williams adds her hope that the regional conferences will act as a lever on local authorities to get them to spend more on in-service training or, alternatively, strengthen her hand in arguing for direct central government grants for such purposes.

Money is the great unspoken of the debate. In the briefing paper which the Association of University Teacher's representatives are taking to the conference, the hope is expressed that the debate will not be used to distract attention from the "underfinancing of all education in the present period of expenditure cuts." The AUT, however, like the representatives of Newcastle University attending today's meeting, will take a back seat.

The National Association of Teachers in Further and Higher Education, which like the other organizations provided a list of questions for the DES to invite to the conferences, intends to make the issue of paid-for day release, in-service training for teachers—and the jobs involved for college lecturers—is also high on NATFHE's private agenda for the meetings.

By courtesy of the television authorities the great debate has been given a run-in during recent weeks, with a series of studio discussion. Will the regional conferences offer more than these? Mrs Williams's personal style will no doubt stamp itself on the Midland and Birmingham conferences she will chair. Some previously unheard voices may be raised.

But for all the novelty of the experiment, it is not clear the DES will here anything from the conferences it does not get from the deputations that arrive at Elizabeth House or from the specialist committees—such as that led by Mr Toni Taylor on school governors and managers—set in motion by the Government itself.

Educating Our Children; free from Room 1/27, DES, Elizabeth House, York Road, London SE1 7PH.

Resentment is growing at what the colleges see as the universities' main escape from teacher education cuts. Judith Judd reports

Why must colleges carry the can?

The two sides—London University's Institute of Education, top, and St Luke's College, Exeter.

The main ring of college of education lecturers against the university department of education have risen to an angry rumble since the latest round of college closures.

By 1980 the numbers in colleges will have dropped from 114,000 eight years ago to 45,000, including 10,000 in-service places. In the universities the figure will remain steady at around 5,000 and there is every indication that the Government intends things to stay that way. In 1981 the number of post-graduate certificate of education students in universities should be the same as in colleges.

The National Association of Teachers in Further and Higher Education has been quick to point out how drastically this alters the proportions in teacher training, in particular they are concerned about the balance between certificate and BEd students and PGCE students.

In a statement last month the national executive committee said there would be an annual output after 1980 of 9,000 BEd and 10,000 PGCE students. The association believes that one year of professional training is not enough for the majority of teachers and the balance should be redressed so that a clear majority of new entrants to the profession come from courses with a longer period of professional training.

"NATFHE also considers that the proportion of PGCE students in the universities should not be increased, as the colleges are well equipped to undertake postgraduate training."

Why have the universities escaped the axe? Do they still have a role in initial teacher training? The obvious answer to the first question is that Government control is much weaker. Mr Francis Commaerte, vice-president of NATFHE and principal of Rolle College, Exmouth, says: "We feel that the cuts should not be borne exclusively by the colleges though we understand the difficulties in the way of making university departments cut their numbers."

"We feel that the whole pattern of teacher production, including the one-year university courses, must now be carefully planned. The DES should bring a good deal of pressure to bear to ensure that there is a rationale in secondary training and encourage certain specialist subjects."

But is this possible with a relatively high proportion of places in the universities? They, naturally, view the retention of their quota differently. Professor R. D'Aeth, director of the School of Education at Exeter, argues that while there is much sympathy for colleges in the universities, their ideas about numbers are based on a misunderstanding.

"Numbers in university departments were held back in the 1960s in order to allow for expansion in the colleges. The present figure of 5,000 is regarded by many education professors as an absolute minimum to keep the system ticking over.

They also believe that the independence from Government control which worries NATFHE and which has contributed to their escape from cuts is a strength rather than a weakness.

Mr V. G. T. Rosewell, advisor to teachers at London University Institute of Education Centre for Teachers, says that it is in their independence of local authority and departmental control that the real value of university departments lies.

"On the surface many of our courses look very like those in many colleges but there is a subtle difference, mainly in our approach. We are unconstricted people and students leave our courses with a very open mind about the education system."

The example he gives is that of teaching French in middle schools. It is probably to the advantage of a local education authority which must concentrate on cost and efficiency to have a single policy on this. "By contrast we would ask whether there were not several ways of doing it or whether, indeed, it should be done at all.

Dr William Taylor, the Institute's director, uses other arguments to emphasise the important and distinctive contribution of universities to teacher-training: "If universities are not going to be concerned with education what else are they going to be concerned with?"

The university departments can justify their existence in many ways. They have a major contribution to make to the advancement of educational ideas because of the exceptional people who work there and the calibre of students who are attracted to them.

"I believe that the number of people with first class degrees whom we are attracting is increasing", Dr Taylor says. "I am quite certain that these and many other well-qualified people would be lost to teaching if the only possible training ground were the colleges."

These views are sharply challenged from several quarters. Mr Commaerts would like to see data on the quality of degrees of those entering courses in universities and colleges. Dr Harry Judge, director of the department of Educational Studies at Oxford, goes further. He believes that most of those doing PGCE courses in universities would happily switch to colleges if the university departments stopped initial teacher training.

Universities say their independence from government control is a strength, not a weakness

There is also contention about the view advanced by Dr Taylor and other professors of education that the employment statistics prove that the schools are anxious for university-trained teachers.

A recent survey by Mr Ed Pelcnoo, principal of Worcester College of Higher Education, showed that only 22.7 per cent of college PGCE students were still unemployed this October. The corresponding figure for university students he calculated at 6.3 per cent, on the basis of a survey carried out by the Universities Council for the Education of Teachers, of which Dr Taylor is chairman.

Mr Pelcnoo suggests that one reason for this may be that colleges produce more primary school teachers than universities and the unemployment problem is greatest among primary teachers.

Dr Judge says that the argument of greater success in finding employment is, in any case, a false one. "If the same people had been trained in colleges because there were no PGCE courses in universities they would be getting jobs in the same way."

Dr Judge's view of education departments is different from most of his fellow professors. He believes that if they did not already exist nobody would now invent them. He also thinks it is a pity that they have not been under pressure to justify themselves in the way the colleges have. But he is not, of course, trying to do himself out of a job. The way forward lies in reform.

He says that the departments which once supplied the grammar and public schools with teachers must find a new rationale to match the massive changes in the secondary school system which have taken place in the last few years. The Oxford department has found its rationale in forging new links with both Oxfordshire schools and the university as a whole. The task which university departments have traditionally performed can now be done just as well by the colleges, he says. The smaller departments should close.

Dr Taylor, however, takes issue with this. He says that the universities have resources in terms of libraries and computer facilities which colleges cannot muster. Research work is vital and very little of it is to be found outside universities. For this, the PGCE is an important base since valid research cannot be carried on in a vacuum.

On the smaller departments he admits there are problems. What happens if the one lecturer in a subject is sick? But he is firm that the solution does not lie in closure. Each region should have access to the facilities which a department can provide. The answer for small departments is to specialize.

Dr Judge remains sceptical. Getting the smaller departments to specialize is all very well but who is going to make them do it? He says there is no body under the present system which would be prepared to carry out a rational distribution of places.

The most complicated issue in the whole debate is that of concurrent versus consecutive training. Both sides agree that there is not enough evidence available of their relative merits. Mr Commaerts feels that a single year of practical training is not enough to equip student teachers for the problems they will find in urban primary schools and the mixed ability classes of the comprehensives. Hence NATFHE's concern that nearly half the teachers being produced in the 1980s will have received only one year of training.

This proportion may change when the effect and extent of the Dipllo es a route into teaching is clearer but as Mr Commaerts says, not all DipHes are relevant to teaching.

The one-year courses would worry him less if there were a good programme of induction and in-service training. Despite Government declarations of intent on in-service training.

Dr Taylor, too, is cautious about training methods. It is an issue which still has to be thrashed out, he says. He agrees that for some types of teaching it may prove better for the student to have contact with children for a longer period and from an earlier stage. At the moment there is no evidence that concurrent training produces better teachers.

Nor is their much evidence that NATFHE's worries are about to be reflected in Government action. Despite rumours of cuts in university places the University Grants Committee expects there to be only a slight reduction in numbers in education departments this year.

Is London trap set to open?

From 1836 until 1975 the vice-chancellorship of the University of London was an unpaid annual post, the occupant latterly drawing his salary as professor or head of a school. Then in May, 1974, the senate made statutes with the object of turning the vice-chancellorship into a full time, salaried appointment tenable for two four-year terms.

Some readers may recall that Louis Blom-Cooper and I, with others, petitioned the Privy Council against these statutes and that in May, 1975, the Privy Council committee of three Law Lords disapproved the statutes on the ground that under the University of London Act 1926 they were invalid, as that Act authorized no such radical change in the constitution.

In July, 1975, the deputy vice-chancellor on behalf of the senate, and the court, authorized the payment of honoraria to the vice-chancellor of £4,668 per annum in addition to his other salary; and backdated the award to 31 January, 1974, at the rate of £4,089 per annum.

This seemed to me to be unnecessary, extravagant and unfortunate. Also I believed that as the action of the deputy vice-chancellor did not come before the senate until 16 July, 1975, the increase was contrary to the Government pay policy announced in the White Paper of 11 July. Also I believed that the payments of the honoraria were illegal. So I petitioned the Privy Council again which again appointed us three Law Lords.

I digress to say that I was heard (no less than on the previous occasion) with the utmost courtesy especially by Lord Salmon (the only survivor of the previous triumvirate) who greeted me more as a former acquaintance than as a vexatious litigant.

This second petition was not under the statutory procedure of the 1926 Act but in Her Majesty in Council as Visitor of the University of London. And this brings me to the purpose of this note. Their Lordships found against me and I would say they were wrong did I not as a lawyer lean to the Realist School and believe that the law is what the highest tribunal says it is.

What is interesting is the light which their Lordships' written opinion throws on their view of the Visitorial jurisdiction. The opinion stated:

> The second submission [" that the honorarium of £4,668 was awarded at a time when university teachers were being denied half of an inflation award, and is bound to be widely resented "] and the fourth submission [" that it is in any event ill-judged and foolish . . . to make a back payment of over £6,000 to the head of a school "] show that the petitioner disagrees with the university as to the expediency of paying the honoraria therein mentioned, but in the opinion of their Lordships that is no reason for the visitor to interfere with them unless they are illegal or improper.

And by "improper" their Lordships made clear that they were speaking of legal impropriety.

This quotation reinforces the attitude adopted by the Privy Council on the earlier petition which they upheld. There also their approach it seems to me, was wholly legalistic. And the moral of all that is, first, put not your trust in princes. We know that the Privy Council, through its orders and so on, is quite willing to impose its policy on universities when it sees fit. But if it wants not to [when, for example, individual people or institutions within the university want to question university policy which coincides with Privy Council thinking] then the matter will be put to a committee which consists solely of lawyers in the expectation that they will stick to points of the law.

Second, if the Senate House of the University of London acts like the overfed, overpaid bureaucracy it is, don't expect any help from outside.

Third, as the senate proposes to pay the vice-chancellor at the level of a permanent secretary (currently £21,000 pa) and as the principal of the university is the next highest paid person in the university, distinguished heads of schools and even distinguished professors, all of whom get appreciably less, are just possibly come to see what Frankenstein's they are and what monsters they are creating.

Fourth, now that the heads of governing bodies of schools have acquiesced in the proposed new University of London Bill and so have obliged the Department of Education and Science and the University Grants Committee by playing the rope around their (and our) own necks, watch for the opening of the trap.

John Griffith

The author is professor of public law at the London School of Economics.

Senate House—debate over Bill goes on.

TALKING POINT

A page open to all who feel they have something of value to say on topics of interest and concern in higher and further education

Declining rewards for research

During the past two years the university and polytechnics have often been the prime focus of public concern over issues in higher education, underlying the discontent in the university sector is the fact that the polytechnics are receiving the universities. As the "average" university considers himself to be underpaid in the light of his record of research and teaching, given that, in his view, polytechnics epitomise what higher education is all about.

That our university system works this way is really quite astonishing because the universities regards successful research publications as the most significant against which to judge a teaching staff.

This does not imply that university lecturers dislike administrative duties, but rather that since the system takes account of either teaching or research ability what prospects are under which university lecturers to improve their lot or to concentrate things which the system considers most important.

Currently most polytechnic lecturers have the same qualifications as their university counterparts. Nevertheless the emphasis on research and publications, largely because of their former professional lecturer and academic status, is definitely not encouraged by the "average" polytechnic which responds by concentrating on course administration and development.

In general, unless one has a degree level course or more than prospects are limited. Understandably the "average" polytechnic responds by concentrating on course administration and development.

Given the above, one of the most surprising features of much research activity that takes place in the universities and how little is directly relevant, but, surely, for the prolonged period of time publish wilfully is the absence of support from the central university administration and hierarchy. At the same time neither to do research nor to publish when the system emphasis upon those activities is contrary to the spirit of the regulations of service. Such a relatively small number of academics do in fact publish.

In a recent American study of all full-time faculty members never written or edited a book; that more than half published no articles. One other conclusion from the Ladd and Lipset found that those who published did not necessarily do so because of security of tenure, but because of the education sector. It is also true that one can be a good teacher without publishing, although it is true that a lecturer who has an active research and publications record is more likely to keep his job in the long term.

Over the next few years promotion prospects in many universities will be largely determined by individual research and publications record, and more and more will be expected to publish. Those who will not will be faced with the prospect of no promotion. Furthermore, the public is enlightened by research and publishing is rewarded by the prestige and the opportunity to consult elsewhere.

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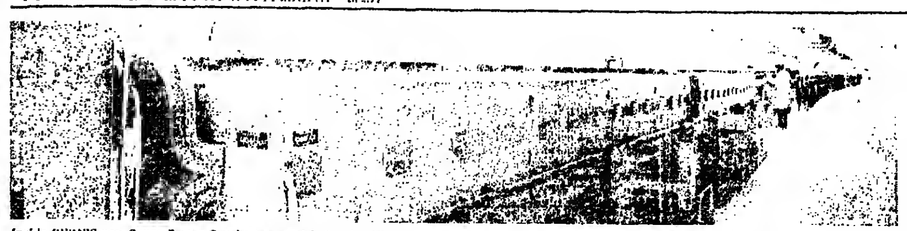

Inside CERN'S new Super Proton Synchrotron particle accelerator.

Learning the lessons of CERN

Norman Dombey argues that as the costs of scientific research increase, future regional and national centres should, where possible, be based on universities

"The report of the working group makes clear that the main problem for the country is whether the resources can be afforded, and for scientists whether the resources necessary to allow the rest of science to develop properly can be satisfactorily shielded should the costs of so large a project like planned new accelerator in CERN escalate."

Council for Scientific Policy, "Second Report on Science Policy, Cmnd 3420", October, 1967.

"The second [question] concerns the relative extent to which increased expenditures on scientific research is reflected on the one hand in increased research effort and on the other hand in higher money costs. In other words, how far does increased expenditure on scientific research increase the quantity of research results produced, and how far does it merely bid up the salaries and raise the operating expenses of research personnel?"

Harry G. Johnson, *"Technological and Economic Interdependence"*, Macmillan 1975.

A direct result of last year's devaluation of the pound was that the British subscription to CERN—the European high energy nuclear physics centre in Geneva—increased from £18½m in 1975-76 to an estimated £23¾m for 1976-77. Proportionately, increases amounting to about £5m will be paid to the other overseas facilities which the Science Research Council supports, including the European Space Agency and the High Flux Reactor at Grenoble.

These increased totals more (in real terms) than the £7.2m spent in 1975-76 by the science board of the SRC for research grants to all universities and polytechnics in the combined fields of chemistry, biology, mathematics and physics (except nuclear physics). As the SRC must now operate within strict real limits, the warning of the Council for Scientific Policy ten years ago has come true: to meet this cash crisis a moratorium was imposed on new research grants last August.

If cash limits are imposed, it becomes clear even in a non-crisis situation that funding for one project is always at the expense of another. In particular, an increase in expenditure in big science—for example on CERN—is equivalent to a refusal of funding of tens, perhaps hundreds, of promising projects in science based in universities and polytechnics.

Yet Professor Johnson's question is very relevant in CERN. Salaries at CERN are enormous at all levels; administrative and supporting facilities are lavish; buildings are built to last for ever, and as a theoretical high energy physicist I am constantly amazed whenever I visit at the over-expanding corridors full of other theoretical high energy physicists—over 100 at my last count.

The present annual budget of CERN is over 600m Swiss francs. This is more than the budget for all five national laboratories in high energy physics in the United States, which includes not only the Fermi Laboratory near Chicago where there is an accelerator similar to the new supersynchrotron at CERN (and not more than 10 theorists at any one time) but also the two-mile long Stanford accelerator and storage ring complex, the facilities for high energy physics at Brookhaven, Argonne and Berkeley, and support to university groups in annual experiments at those laboratories (CERN does not on the whole provide this support out of its budget).

Criticism of the high cost of CERN should not be interpreted as an attack on the existence of CERN; it is meant to focus attention on the costs of large establishments. CERN has been very successful both scientifically and as a pioneer of European collaboration; the CERN treaty was signed in 1952, well before the Treaty of Rome.

High energy physics is still an exciting subject which, more than any other, has its direct ancestry in relativity, quantum mechanics and nuclear physics, the subjects which comprise the major scientific revolution of the first half of the twentieth century. Experimental and theoretical advances in the subject have led both to advances in other branches of science and to advances in technology.

It is not difficult to justify the present level of expenditure in Britain on basic scientific research—that is on scientific research which has no obvious or short-term application. If anything, the expenditure is somewhat on the low side compared with other industrial countries.

The reasons that governments fund basic research are not primarily scientific, but technological and educational. It is hoped that successful research in basic science will initiate or accompany successful research and development in technology, as was the case, for example, in the development of radar or the transistor.

It is also expected that a training in basic science at a high level will give a flexibility in outlook which will allow people to deal with future circumstances for which no precedents exist, rather than just provide a professional competence which may become out of date in a short time.

In the words of the recent report of the House of Commons' Select Committee on Science and Technology, "the development of fundamental knowledge and the training of highly qualified manpower of today inevitably affects the ability of the nation to perform the applied R and D of tomorrow".

Most industrial countries spend between 10 to 20 per cent of their total national R and D expenditure on basic research. Britain is on the low end of the scale, at about 10 per cent. The SRC accounts for about one half of this, and in 1975-76 its budget for basic research was just over £100m. The main problem arises not from the size of the funds available for basic research but from the distribution of those funds.

Over 60 per cent of SRC's budget is on "big science"—those projects which call for large capital expenditure to provide a research facility and involve the establishment of a central laboratory to house the facility together with supporting services. This emphasis on "bigness" parallels the government investment in big technology; over 80 per cent of the spending of the Department of Trade and Industry on civil R and D in 1972-73 was in the fields of nuclear power and aerospace.

This situation is the heritage of the 1950s. Sir Alun Cottrell has written of that period that "in 1952 the way forward for the country seemed obvious. Science would tell you what could be done and technology would say how to do it. And so the great projects flourished and multiplied—TSR2, Blue Streak, VSTOL aircraft, Concorde, Caldec Hall, Zeta, Atlas computer, Ariel satellite, radio-telescopes and nuclear accelerators."

Thus not only was the commitment made to CERN, but a programme of national accelerators for research in high energy physics was agreed. There were to be two national laboratories: a proton accelerator at the Rutherford Laboratory near Harwell in the south, and an electron accelerator at the Daresbury Laboratory near Warrington in the north.

The problem in Britain, therefore, is that there is relatively too much spending on big science compared with spending on scientific research carried out in universities and polytechnics throughout the country. This is clear from a comparison of the fraction of basic research performed in the higher education sector of various countries.

According to the Select Committee on Science and Technology, this share was 38 per cent in Britain in 1971, whereas in Germany, France, America and Japan it was over 60 per cent and in Belgium and Sweden it was over 70 per cent. The effect of this imbalance has been clearly shown by the increase in the international subscriptions, but it should be borne in mind that the international centres only account for one half of the SRC expenditure on big science.

If the cost of equipment is so high in a particular subject that it has to be spread among several countries to allow an ongoing programme, and if there are good scientific reasons for a country to participate, it is sensible to have an international collaboration. Similarly it is sensible to house the national and regional centres where the cost of equipment is too high for any one university to be able to afford it by itself.

So what lessons can be learnt from this crisis? First, the proportion of funds allocated by SRC to big science and full relative to small science in the next few years otherwise these crises will recur. This process in any case will be helped by the closure of the electron synchrotron at Daresbury in the next few months, and the closure of the proton synchrotron at the Rutherford Laboratory, presumably in the next few years or so.

Secondly, in general where there is a need for regional and national centres in the future, they should be sited if at all possible at universities. This is so because (i) it is cheaper. The overheads are always much less at a university, and the pressures referred to by Professor Johnson can be better resisted.

(ii) The educational impact at the centre will be maximized.

(iii) There will be more chance of profitable interaction between different sciences, and between basic and applied science, in an institution where several such disciplines exist. So the likely technological impact is greater than in a single subject centre.

(iv) The university will still exist when the useful life of the machine has ended. This will help prevent demands for a new machine, regardless of wider scientific or national priorities.

Thirdly, where international and national centres exist outside universities, as much work as possible should be subcontracted to the university groups working at the centres, for all the reasons above. This is the American practice in high-energy physics, and is one important reason for the comparative cheapness of their research programme.

Finally, I should like to urge a programme of flexibility on SRC, and, perhaps more importantly, on the Government. If funds for big science do shrink over the next few years, then it is important to remember that money for science is not the only resource which is limited; highly qualified scientists and engineers are also a limited national resource. Therefore I hope that SRC will help university groups now working in high-energy physics or other areas of big science who wish to develop new interests to do so.

It will also be necessary for the national laboratories to redeploy their staff. This is difficult under present arrangements, as the staff are SRC employees. It is not the fault of SRC that national laboratories for basic science, since the enactment of the Trend Report in 1965, are now totally separate from the other mission oriented government research laboratories.

Under the old Department of Scientific and Industrial Research they were all together. It is to be hoped that these existing government research laboratories together with any new SRC centres to be set up in priority disciplines such as marine technology will be able to react positively to help this process of redeployment.

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A welcome marriage with the arts

For 30 years, educationists and artists have grown in separate establishments. From its first faltering steps the Arts Council has become a solidly based national institution, with its own philosophies, officialdom, and traditions. In times of growth its link with education developments has seemed tenuous. Education and the arts have had their own separate funds, bureaucracies, and Ministers.

Now dwindling resources have forced the Minister for the Arts back into the education establishments. Talk of damnation for the arts is in the air. There is dismay at what is seen as a loss of prestige for the arts, and general regret that the new direction represents a potential defeat for the forces of civilization.

I hope that I am not alone in seeing this new marriage as, potentially, a matter for rejoicing. Surely anyone who has been engaged in teaching or administering the creative arts in the last two decades must have despaired at times over what was too great a division in our society between the professional artist and the professional educator—in terms of aims, practices, and above all language.

We are not so many of the confusions and arguments over the future of the colleges of art—those marvellous firecrackers in the higher education box—made worse by the fact that there seemed no common language, no generally agreed goals? Likewise, those of us who tried to incorporate creative activities into the BEd degree too often found that the gulf between creative artists and professional educators had grown so wide that it would have taken years to find common ground.

When I look back I see, in a word, confusion. As public funds have been used to build civic theatres, so other public funds have been poured into educational drama, which has usually taught that the traditional theatre performances housed by the civic theatre are irrelevant and dull. As the numbers of students taking courses in, say, literature and music has increased, so has the public subsidies for writers and musicians seemed incomprehensible to most of the newly educated.

Separation has meant that attempts to create an informed audience for the contemporary arts, and attempts to educate the young, have been too often at cross purposes. Indeed, after 30 years of growth in arts education, and 30 years of steady growth in public subsidy for the arts, the cynical might note that the only audience which is consistently growing is the audience for the third rate.

The new hardships seem to me to give us an opportunity to end some unnecessary frustrations. In education and in the professional arts we can look afresh at some of the costly experiments. More important, we can at last grasp the nettle of national policy.

The very mention of these words brings artist and educator out in a cold sweat. But we have had a national policy for the past 30 years, because some kinds of education and artistic activities have been heavily backed with public funds, and at the expense of all alternatives.

[illegible] we look hard at our habit of funding activities in the two areas which are mutually harmful and at ways of educating our students to understand the arts that we think valuable; that we try harder to put the best contemporary art on the curriculum and to bring the best artists, by public subsidy, in touch with the widest audiences.

Unexceptional aims, but aims lost sight of in recent years, when the modish liberality of our times has allowed us to give acute support to the half-baked and the freakish, and has allowed us to give currency to theories which are incoherent and brutish. If the new situation means there is a chance of us having a national policy for the arts and arts education, then I shall be grateful indeed—not least because the avant garde will have something cogent to fight once more.

John Pick

The author is director of arts administration studies at City University.

Education tribe needs studying

At a time when there is a vital need for attention to be focused on "basic purposes" of education, an area of study which would contribute to both the intrinsic as well as extrinsic aspects of those that develop the individual and those that equip him with social skills is social anthropology.

Social anthropology is typically characterised as being firmly attached to the humane component of education, and rarely finds a place in the curricula of schools, further, higher, and professional forms of education, this probably as a result of its image as a conglomerate of the ruminations of armchair anthropologists, cannibalistic tribes, and pith-helmeted Oxbridge adventurers. But these notions render a complete injustice to the discipline and endeavour of social anthropology, whose main purpose is to seek to provide an understanding of man and his social context.

Not only is it important to include social anthropology in educational curricula at all levels, but it is also vital for anthropologists to provide information about our society in order to provide the necessary [illegible]

British social anthropologists must also direct their attention to what has been for the majority a neglected area, namely education and socialization in general.

Traditionally, British social anthropologists have tended to spend a considerable amount of time and effort in the study of small-scale, pre-literate, technologically-simple societies. This work has been, and continues to be, of considerable value in providing information and understanding into these myriad forms of social existence, and as such should be included in the curricula.

More recently there has been a tendency for social anthropologists to direct their attentions to our own society, and towards an analysis of the structures of social organization and meaning inherent in it.

Yet they have still to focus adequate attention on actual educational processes and institutions. For anthropologists in this country have, for the past 40-50 years, avoided, with few exceptions, such areas, possibly because of an intellectual reaction to the approach employed and popularized by such American anthropologists as Margaret Mead and Ruth Benedict.

In this multi-cultural and multi-racial society, it is becoming increasingly important to understand and respect the way of life of those with whom we work and live, rather than to leave this process to the vagaries of the media and politicians with their predilection to employ crude stereotypes and inaccurate generalizations. The study of social anthropology in educational institutions might serve to counteract their effect. Such a counteracting force may produce a more sensitive understanding of others in all areas related to community and occupational structures.

We recognize, however, that for social anthropology to be included in the curricula at all levels needs the willing cooperation and participation of those involved in curriculum planning, development, and implementation. Also required is a direct cooperation of social anthropologists themselves, who have appeared to insulate themselves in a somewhat esoteric, theoretically oriented circle.

At a time when the help is being tightened and cries are being heard for the education system to produce the manpower requirements of our flagging industrial society, it may seem inappropriate to argue for the inclusion of what has traditionally been considered a liberal subject.

But social anthropology is of very definite instrumental value—not only in relation to teaching, medicine and social work, but also to the very scientists and engineers in whose basket Mr Callaghan seems to be placing most of his eggs.

Kristine Mason
Robert Meyenn

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Fragments of a life in academe—Oxford

Depression and delights among gleaming spires

To say that I taught at Oxford is inflation. Still, I gave graduate seminars one term in philosophy of religion. I was lecturing then at London, with Professor H. D. Lewis, who held a university chair.

I was unattached in theory to any college, and was free to ask the university Senate for permission to operate in Oxford. A week or two after the series of seminars was over I got it. Such were the slow mills of the Bloomsburyerats.

My graduate work was in Oxford, and before that I had gone Greats. I was there in the heyday of Oxford philosophy. In many respects it depressed me, positivistic rationalism with romantic Wittgensteinian undertones, and enforced by a reign of mild intellectual terror.

Well, I may exaggerate, but certainly in seminars unfashionable and hesitant voices were drowned, and non-analytic types were sneered at. It was not a happy period for the free expression of opinion, especially because the commissars were often cleverer than their metaphysical quarries.

I was somewhat committed to analysis myself. I worked with J. L. Austin on religious and the cognate formidable to enjoy [illegible] of my confrères though I must be mad to explore religion, a dead duck (they thought) both socially and philosophically. Of course, Hare and others kindly crept in with various devices to prevent God from dying, and a minor defence-of-God industry developed.

Before long Strawson began to berstride the scene. In his later *Individuals* he allowed that a conclusions could survive a person's death, though embodiment is the essence of personhood. It led me to a poem:

> Mr Strawson has held a logical
> curse on
> The thought of a never-embodied
> person;
> Such a naked soul just wouldn't
> be viable—
> But worse, it'd be maldentifiable.
>
> Still, things may be better than
> we had reckoned
> For couldn't a soul for about a
> second
> Acquire a body and so on identity
> And this become a respectable
> entity?

It's a bit of a midsonce such body-filling.

> But the flesh is brief and the
> spirit is willing.
> Yet it's bad to be... shunned into
> apparition
> By a merely *descriptive* metaphysician.

[illegible] was very [illegible] Wittgenstein overseas scholars, and I was nervous. When I finished my paper a young man, fresh from Cymru, spoke. "I didn't understand a word", he said. Diffidently I tried to repeat the gist of my paper. It was no good: so had Wittgenstainian reasons for not being able to understand, in principle.

I was surely sunk. The worst accusation in those ways was unintelligibility. One did not even get as far as a healthy falsehood. The young men is now a giant of the South Wales School, whose the *Philosophical Fragments* have been scored for the harp.

Of all the gurus of whose feet I sat, Waismann was most lovable and sensitive. He once was asked about a recent book: he raised his hands with a sigh and said in his gentle Central European accent: "My friend Schlick used to read books and tell me what was in them, but he has been dead these many years".

He had been assassinated before the war, Schlick. One wondered who in Britain could arouse enough emotion for the bullet.

Ryle was king-maker those days. When I got a job at Aberystwyth halfway through my BPhil he advised me to give up the degree, saying it was only a means of getting a job and now I had got a job why bother? Shocked, I carried on.

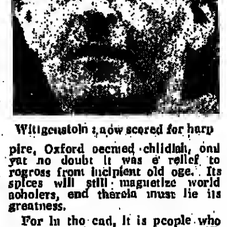
At least in the 1950s *relatively* [illegible] revolutionary air. It is, indeed, still with us in the 1970s. I do not for a moment regret its skills, but I am glad I do not now live by philosophy alone.

Sometimes I am asked, as all Oxbridge folk are, whether I would like to "go back". The privileges, the cricket fields, the nuts and wine, the shoulder-rubbing—these are delights.

But one wonders whether MIT or California might not be better for the intellect, and as for my own subject, the study of religion, the less flows more narrowly than the Luna. But maybe some grapes abound: I shall at least pay homage to the alma mater of my mind.

Actually the Oxford of my day, abounding in Thorpes and Williamses and Doys and even the occasional Boyle, was still post-war. I was still in the army on demob leave my first term. I occasionally gave my name to appropriate junior fellows as Captain Smett-Queen's was a bit plebeian; the highest rank was Colonel, the most popular Sergeant.

After command in tropical Em-



Wittgenstein, now scored for harp

pire, Oxford seemed childish, and yet no doubt it was a relief to regress from incipient old age. Its spires will still magnetise world scholars, and therein must lie its greatness.

For in the end, it is people who count in universities, not qualifications, such as the University Grants Committee perforce performs, together with their Trojan horses.

Ninian Smart

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Genetic researchers win important victory

The Cambridge City Council has formally lifted its ban on genetic research at Harvard and the Massachusetts Institute of Technology, but has imposed safety regulations that are far more stringent than those proposed by the government last summer.

The guidelines from the government's National Institutes of Health grade DNA research laboratories from +P−1+, similar to an ordinary school laboratory, to +P−4+, enclosed by air and shower chambers. All potentially dangerous and unpredictable experiments, including all those using DNA from mammals, have to be conducted in at least P-3 laboratories. MIT has one, and Harvard is now constructing one.

The guidelines also insist that the host organisms to some of the dangerous experiments be specially mutated so that they have only a minute chance—one in 100 million—of surviving outside the laboratory environment.

The Cambridge ordinance goes further by outlawing all P-4 research and requiring that all P-3 research use the altered organisms, known as EK2. The need to mutate the host organism is seen as all the greater because almost all the bugs used in DNA experiments up till now are E. Coli bacteria, which in their normal state live in the intestines of humans. The fear is that genetically altered E. Coli escaping from a laboratory might return to the intestines through the water supply.

Geneticists at the two universities complain that the EK2 variant is difficult to keep alive for experiments, and that NIH certification of EK2 cultures is cumbersome and time consuming.

The Cambridge ruling has important implications for both scientific research and local communities. Similar legislation is now expected in university communities such as Ann Arbor, Michigan, Palo Alto, New Haven, Connecticut, and Providence, Rhode Island, where similar research is being conducted.

In California the state legislature is now holding hearings on the issue. The New York Attorney General's office is preparing legislation that would give the state authority to issue regulations governing such genetic research, and a citizens' committee like the one at Cambridge is being formed in Princeton to examine the university's decision to go ahead with such research.

Last September President Ford, in response to a Senate subcommittee recommendation, established an inter-agency commission headed by the NIH director to investigate ways of bringing all laboratory research under the guidelines. The commission report will be ready soon, and Congress is expected to take legislative action in the near future.

New York fights to retain two graduate programmes

The vast State University of New York system is locked in a quarrel with the state Education Department over a proposal to close two graduate courses offered on SUNY campuses.

The Education Department last year refused to "register" two graduate programmes in English and history at the Albany campus, because it said they were not academically good enough.

No education course can be offered in New York unless it is registered. The State University disputed the right of the Commissioner to close graduate courses, went to court, and lost. Its new plans to appeal to the state Supreme Court Appellate.

The omens do not look good for SUNY, however. The Education Department has regularly inspected graduate programmes since 1787. There is a panel of distinguished teachers from other states, who report to the state Commissioner. All other universities, both public and private, have accepted the panel's verdicts and have usually terminated condemned programmes voluntarily.

SUNY maintains that a 1961 law giving the trustees authority to administer the internal affairs of the university "indicates that the State University was to become sui generis and not subject to the same requirements imposed by the Regents and Commissioner on private institutions of higher education in this state".

The judge flatly rejected the claim. Moreover, his rejection had the eagar support of other universities in New York, which did not want to see SUNY being treated as a special case.

The Commissioner's office says the decision not to register the two Albany programmes was taken purely on academic grounds. It was not based on the need to cut costs or the fear that too many graduate programmes are now being offered. These other questions—which are also very real issues—are tackled separately.

SUNY also argued that as the criteria for closing a programme were not known, the action was therefore capricious. But the court agreed with the Commissioner that any university offering doctoral programmes ought to be aware of widely accepted minimum standards for such a course within the academic community.

$208,000 for career education project

La Guardia Community College of the City University of New York has been given $208,000 by the US Office of Career Education to develop a model of career education that could be adopted by the two-year community colleges throughout the country.

Career education—the attempt to relate education to specific career goals—has enjoyed considerable governmental and Congressional support recently. But no clear pattern of what it is supposed to be has yet emerged. The La Guardia grant is an attempt to rectify this.

In the second of three articles on tenure, our correspondent looks at the arguments in favour

Freedom of word (and deed)

Almost everyone agrees that academic freedom is a prerequisite of a healthy university system in the United States. And most agree that the best guarantee of this is the system of tenure. The important date for the present pattern was 1940, when the American Association of University Professors last revised its declaration of principles. These principles are still the basis of most tenure arrangements.

The 1940 statement has four main provisions:

Permanent tenure can be acquired automatically, without any particular act by the institution, simply by length of service of the teachers.

Permanent tenure is not confined to holders of any particular academic title, nor is it confined to those who have served for a stated period in any particular rank. An instructor, assistant professor, lecturer, and so on, holding a full-time appointment gets permanent tenure after the same probationary period as an associate professor or professor.

The probationary period should in general not exceed seven years, beginning with the first appointment to the rank of full-time instructor, including within this period full-time service in all institutions of higher education.

So a teacher who has held full-time positions in other institutions should get permanent tenure in a new academic position after if he has served elsewhere seven years.

The probationary period of seven years can be extended only if a teacher after probationary service of more than three years in one or more places agrees in writing that his new appointment is for a new probationary period of not more than four years. Since a full year's notice is required, the teacher in effect is assured of permanent tenure in his new position if he receives no notice of non-renewal of his appointment before the end of his third year of service.

These rules are the strict interpretation. Many colleges have adopted variations. For example, they often only give tenure after promotion to the rank of professor. The AAUP agrees to this if the promotion to tenure positions is within the maximum probationary period. Universities often have an "up or out" practice, which says that after a specified number of years a teacher must either be promoted or sacked.

The probationary period is the essence of most tenure agreements. The AAUP thinks seven years is about the right length of time: but some institutions—Princeton and the University of California, for example—insist on eight or nine. Generally it is in the humanities and social sciences that more time is needed before judging whether a teacher develops original and important research. In science a prediction of quality can be made more quickly.

Arguments over tenure often centre on the length of the probationary period: in most market conditions (such as today) there are pressures to shorten it. There were even suggestions some time ago, particularly from the more unionminded American Federation of Teachers, that tenure should be automatic and instantaneous—an appointment.

The probationary period is generally recognized as essential, however, because universities must make a serious judgment at the end of it. Tenure is generally considered a guarantee of appointment until retirement age. It is not an absolute protection against dismissal—financial exigency, physical or mental incapacity, some frightful act of moral turpitude or persistent neglect of all university responsibilities—have occasionally resulted in "negotiated" termination settlements, but on the whole universities are extremely reluctant to sack a tenured teacher. The attempt can lead to an expensive lawsuit.

The defence of tenure usually falls into two categories: the need for job security in order to draw good people into academic life that is undermined by comparison with industry; and the need to allow teachers to say and write what they think without fear of reprisal or dismissal.

The second argument is especially telling in America where the havoc caused by the McCarthy era, especially in the academic world, is still a nightmare to some.

Kingman Brewster, President of Yale, argued a few years ago that while tenure did to some extent protect a university from threats of politicans, taxpayers and even occasional alumni, there was a more subtle threat to academic freedom which tenure successfully resisted. This was the feeling of being beholden to senior professors and deans for favour or even survival.

"Teachers and scholars", Mr Brewster said, "should, in so far as possible, be 'inner directed', guided by their own intellectual curiosity, insight and conscience. In the development of their ideas they should not be looking over their shoulders either in hope of favour or in fear of disfavour from anyone other than the judgment of an informed and critical posterity."

Dr Brewster did not think the costs of tenure were high. "Those who gain tenure at Yale do so at a rest in happy security on their professional laurels. Indeed, almost without exception it is the elders who are productive up to and well beyond retirement. They are the ones affected with the enigmatic headaches and other forms of psychosomatic trauma, less their life should ebb away without the completion of their great work."

The AAUP argues that tenure also protects institutions from academic fads. There is a temptation now, for example, for the small and financially shaky independent colleges to sweep away all existing courses and set up new profitable new courses such as vocational and business-oriented studies. This, Mr Jordan Kurland, Acting General Secretary, said, would be inimicable to the liberal arts. Luckily, because of tenure it could not be done at a stroke.

Academic fashion also took more insidious forms: there were strong political pressures on a teacher to accommodate his honest perspectives to the conventional wisdom. "The point is as old as Galileo and indeed as new as Arthur Jensen", one AAUP paper said:

But this reasoning does suggest that only those with tenure have full academic freedom—and do those without are less than free. Conceding the Orwellian parable the AAUP argues that the great rigour of due process necessary for older tenured teachers because dismissal was harder on them: they had invested more of their time and energy in a discipline and institution. The non-renewal of a probationary period was less of a blow to a younger, more mobile teacher.

Those arguments have long been conventional wisdom in American universities. But there are now other post-secondary education institutions—trade schools, specialist academies, for example—which have never had tenure. Some newer universities are now experimenting with similar contract systems. The tenure system is being challenged on home ground.

Next week: Alternatives to tenure.

Women intake rises sharply

The number of women entering graduate and professional schools has gone up so fast in recent years that they now make up about half all first-year graduate students, according to statistics just published by the United States Census Bureau.

Between 1970 and 1975, when the last survey was taken, the enrolment of women rose about 75 per cent, while for men the increase was only 23 per cent.

In undergraduate education women also made gains in the same period their enrolment went up 40 per cent, compared to a 21 per cent increase by men. In both cases, however, women were less likely to complete their courses.

In graduate schools their numbers declined after the first year. Women accounted for only about a third of the second, third and fourth year students.

The number of women getting PhDs rose 59 per cent between 1970 and 1975—from 4,600 to 7,300. In the same period, the Census Bureau said, the number of doctorates awarded to men actually fell 2.6 per cent, from 27,500 to 26,800.

There was also a huge increase of 184 per cent in the number of first professional degrees awarded to women: to a total in 1975 of 7,000. In the same period the number of men receiving such degrees went from 35,800 to 49,200, an increase of 37.4 per cent.

'Little link between field of study and choice of job'

Fewer than half of graduates make frequent use in their jobs of the main subject they studied at college, according to a recent survey. They tend to use their non-major courses even less. They also find their education of little help in directing them towards the choice of life goals.

The study, commissioned by the College Placement Council and the National Institute of Education, the government's education research body, examined over 4,000 graduates, all of whom began college in 1961. To the question whether their education had given them the skills needed for their current jobs, only 38 per cent replied that it had been "very useful", with 50 per cent reporting "somewhat useful" and 12 per cent answering "not at all".

However, nearly all graduates found they used at least some of what they had learned at college in their jobs. They praised undergraduate education for providing them with general knowledge and qualifications which increased their chances of finding a good job.

They were less enthusiastic about its usefulness in developing leadership qualities and the ability to think clearly.

One of the unexpected findings the authors said, is that those who majored in liberal studies were only a little more enthusiastic about the benefits of liberal education—increased general knowledge, ability to think clearly and leadership—than those who did not. For graduates of vocational courses (business, engineering, education) were much more enthusiastic about education to their career.

The study offered several possible reasons for the reported inapplicability of college-learned skills. First, half the women and nearly two thirds of the men surveyed chose their careers only after leaving college. Second, the opportunities for entry-level jobs often became outdated when a person was promoted—when a foreman became an administrator, for example.

Graduates, were also asked what courses they would recommend for job preparation, regardless of their major specialism. Those leading to a degree in engineering, business administration, biology, economics and accountancy topped the list. The implication was, it was said, that graduates felt they had neglected general sub-grounding in such as communication, and handling of figures and general business practices.

Italy

Biggest protests since 1968 hit Rome

from Patricia Clough

ROME

Thousands of students last week occupied university buildings, paralysed traffic with rallies and demonstrations, staged strikes, held endless protest meetings and daubed slogans on walls as the Italian universities seethed with revolt.

The spark which set it going was an incursion into Rome University campus by a group of fascist youths who opened fire on a crowd of leftwing students. One was shot in the head and is likely to remain paralysed for life. The incursion was followed by another shooting incident the next day involving an extreme left-wing group.

The already tension had been running high in the universities over the attempted curtailment by Signor Franco Maria Malfatti, Education Minister, of the few improvements introduced after 1968—the students' right to plan, with their professors' approval, their own degree courses.

Italian degrees are awarded after a given number of examinations have been passed in the various subjects included in the degree course. These examinations can be taken at various points during the course.

With the encouragement of their professors, many students had studied far, and set, examinations in the same subject for several years running, not in order to cheat, but because each year the subject was studied from a different aspect and they wanted to gain a deeper knowledge of the field.

Signor Malfotti's instructions, apparently based on the suspicion that some students were in fact repeating the same examinations out of laziness, said the practice should stop. The order was later countermanded by the Parliamentary Education Committee, but by then the protest movement had gathered impetus and was not to be stopped.

The divocations quickly developed into a general protest against the Government's plans for university reform. These have not been officially published yet but the general outline is known and regarded by many students as reactionary and inadequate.

The atmosphere is similar to that of 1968 situations was the attitude of Rome University's new Rector, Professor Antonio Ruberti, a Socialist. Instead of deploring the students' actions and calling the police as other rectors have done in the past, he seized the opportunity to go to Signor Malfatti and Primo Minister Giulio Andreotti to point out that the violence was only the result of the critical situation in the university due to years of neglect.

Australia

Good results will mean more places for mature students

from William Purvis

SYDNEY

Mature students have performed so well at Australian universities that more opportunities for tertiary study are being substantially opened this year.

In the past few years most universities have eased entry requirements to encourage some older students to tackle university degree courses.

The results from the start were encouraging. Now the older students have established a clear pattern of lower drop-out rates and higher pass rates. Older students are usually classified as "over 25", but some are in their 50s and 60s.

Macquarie University in Sydney is actually giving older students preference in admission, provided they satisfy a nominal entrance requirement, called provisional matriculation. Other universities also employ the entrance requirements.

However, universities use different criteria and several boast matriculation results with their new students. But Queensland University will set a remarkable record this year—out of 1,120 students enrolled in the arts faculty, 480 will be "mature" students—40 per cent of the total and almost certainly the highest proportion of mature age students on the faculty of any Australian university.

An outspoken advocate for the older students is the dean of the faculty, Dr Ray Seckold, who challenges the traditional view that universities are for teenagers. Some of his students left school 20 or 30 years ago without any formal qualifications.

The results at Macquarie amply support Dr Seckold. The latest collated results there show the mature age students surpassed the general body of undergraduates in almost every department.

For example, the general passrate for full-time BA students in 1975 was 65.6 per cent. But the mature age students achieved a pass-rate of 80.8 per cent.

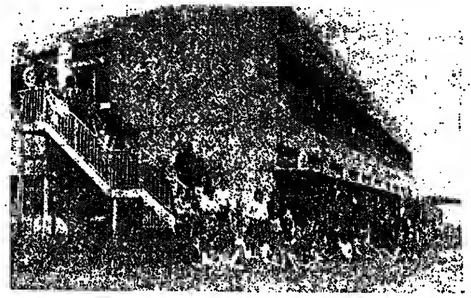
Macquarie claims to have more mature age students on campus this year than any other Australian university—several hundred of them are expected there when the university reopens early next month.

At the University of New South Wales, older students, some with formal qualifications in various areas and some without, have been enrolled for the past three years in a special law degree course.

After a year studying together as a special group, they start to share classes with the other LLB undergraduates. The results show that they more than hold their own.

Mike Duckenfield, recently in Copenhagen, visits the controversial Roskilde University Centre

Innovator or 'Marxist Sunday School?'



Staff and students outside one of Roskilde's "houses".

Divided though they are about its future, both the government and university authorities, on the one side, and students and teachers on the other, are agreed that Roskilde University Centre is now completely out of step with the rest of Danish higher education.

In many ways it always has been; first, as an experimental model offering radically new courses and teaching methods and later, after a succession of serious internal disputes culminating in last year's near-closure by Parliament, as an embarrassing anomaly defying government attempts to bring higher education under tighter central control.

"A monument to the affluence of the 1960s", as one of the centre's three external rectors, Professor Erik Stig Jorgensen, calls it, RUC's present setting—a cluster of 27 one and two-storey prefabricated buildings strauded in a field four miles outside Roskilde—illustrates just how much plans have changed since the university was conceived in the late 1960s.

As a new campus university, which was expected to house 8,000 students by the early 1980s, RUC was to grow to meet new urban development in Roskilde, the communities joining in a complex of sport, recreation, shopping and social facilities. The centre was even to have its own railway station for quick communication with Copenhagen 20 miles to the east.

In the event, the town grew in the opposite direction and the centre fell victim to economic cutbacks. Today, it has no social facilities, save a cafeteria and 1,600 students—only 400 more than in its second year four years ago, with the prospect of at most 1,000 more by the mid-1980s. Transport depends on private cars and bicycles and an infrequent bus service.

The decision to create Denmark's fourth university was made in June 1970 following pressures on existing institutions created by a massive and virtually unrestricted increase in admissions during the preceding decade.

At the same time it was felt that studies should be restructured to avoid early specialization by offering broad foundation courses, which it was hoped would reduce dropout rates estimated as high as 60 per cent at older universities.

Additionally, many hotly-debated innovations such as group work, student participation, problem-oriented project work and social and professionally relevant studies were to be put into practice.

The key aim was flexibility. Different types of study—academic and vocational, short and long, broadly based and specialized—were to be integrated, students were to be able to decide how their studies should proceed and barriers between subjects were to be removed.

The centre offers medium-term courses as well as honours degrees and postgraduate courses in the humanities, social sciences and natural sciences. However, all students undergo initial two-year "basic studies" prior to specialization leading to careers in teaching, social work, research, management and planning.

It is these basic studies which have been at the root of most of the controversy. They are based on project work, students choosing a problem to investigate on the basis of their own background and experience. Rather than make this fit into the theories of one discipline, theoretical knowledge is drawn upon from any subject as work progresses.

Projects are supplemented by other courses within the three study areas and, until recently, all evaluation was based on internal continuous assessment by teachers and the students themselves.

Students usually work in groups of three to ten. Between six to a dozen groups, totalling about 60 students, then form social and study units known as "houses", each of which has its own teachers, a secretary, common room and study facilities.

Conflict began even before the first 650 students started work in September, 1972. The first rector, Professor Bring Olsen, a Social Democrat, wanted centralized decision-making but was successfully opposed by the overwhelmingly young and progressive administrators he had hired. They wanted decisions left to teachers and students.

Professor Olsen, who was subsequently defeated when he stood for re-election as rector, has become RUC's leading critic—calling the centre a "Marxist Sunday school" and criticizing academic standards as being too low.

By 1973 the centre was being affected by the economic recession. Phase four of the building plans—there were supposed to be eight phases—was postponed first for a year and then indefinitely. At the same time it was decided not to establish courses for trainee comprehensive school teachers, though those for upper secondary school teachers were to be kept. Expansion was soon at a standstill.

A year later admissions dropped to only 400 and the centre was under attack as a haven for Marxists. Basic courses were criticized for allowing students to spend as much as half their time on planning their projects and for failing to relate to traditional courses elsewhere.

The crisis came to boiling point in 1975, when the newly-elected Social Democrat government insisted on a reorganization with studies being made more formal, featuring fixed courses rather than projects, and exams being assessed externally.

The new education minister, Mrs Ritt Berregaard felt that changes were progressing too slowly and got Parliament to agree to superimposing an external three-men rectorate with unlimited powers on top of the existing administration.

New examinations were announced to assess the new, obligatory courses, students refused to sit them and 203 were expelled. This sparked off nationwide student demonstrations and the centre was only saved from closure by two votes after a full day's debate in parliament.

Eventually the students were readmitted and the exams went ahead. But a further crisis came last autumn over attempts to introduce new curricula. While these were accepted for the humanities and natural sciences, deadlock occurred over plans for the social sciences.

The government has now decided to halt intake to the social sciences for a year and 10 teachers are to be made redundant. The rectors deny attempts to weed out militants, but senior teachers are currently threatening to strike. They fear permanent closure of the faculty.

One social science professor, Ole Dybkjoer, one of the critics of the reorganization, is that Roskilde has now become "out-dated". He points out that with only 1,600 students and a reduced intake this coming autumn, the centre will only occupy for a tiny amount of the total admissions of the five universities. It would be small enough to close completely without causing more than a ripple through the rest of higher education.

The external rectors have recently presented a draft plan to Mrs Bjerregaard for the future of RUC until 1984. It foresees intake increasing to 600 a year from the present 450 giving a total of 2,500 students, the introduction of some new courses and the building up of groups of teachers capable of taking care of specific disciplines.

Each of the three study areas should be about the same size, with between 800 and 80 teachers compared to the present 62 in social sciences, 47 in the humanities and only 27 in natural sciences.

Whether time will be allowed to heal will depend on teachers, students and politicians. RUC has few political friends and though the Social Democrat government is committed to keeping it open, the right would like to see Roskilde become an affiliate college of Copenhagen University.

Student opinion is divided. Many see the centre as a last cause politically and prefer to invest their energies elsewhere. Others, however, especially in the social sciences, see a major principle at stake. There are now a few who would prefer to see RUC closed than its founding aims gradually ditched.

West Germany

Extremists' Decree entering sixth year

by Günther Kloss

West Germany's so-called Extremists' Decree, the agreement between the Federal Chancellor and the Prime Ministers of the Länder establishing uniform procedures for investigating the political reliability of applicants for public service posts, is now five years old. Despite the controversy surrounding it, it is still being applied in all Opposition-governed Länder.

The Bonn government and the Länder run by the Social Democrats, on the other hand, now generally use slightly less sweeping procedures. These, like the Hamburg regulations introduced last August, distinguish between civil service and other public employees.

Under this revised system at least the more absurd aspects of such investigations should be eliminated in future. Thus, the Wurzburg engine driver, whose case was reported last autumn, might have acquired his permanent civil service status more easily instead of being threatened with dismissal on the grounds of his membership of the legal German Communist Party (DKP).

Bavaria still adheres to the much more stringent earlier regulations, according to which every applicant has to be examined. A report of the Bavarian Ministry of the Interior just published, which reviewed Bavarian practice since 1972, leaves two distinct impressions. Judging by results, the whole elaborate procedure is hardly worth the trouble the bureaucracy is determined to go to; and the administrative courts, which have become involved in most cases, more often than not found in favour of the initially rejected applicant.

Over the five-year period only 65 applicants have actually been rejected out of the many thousand new appointments. Fifty-nine of those fall into the education sector. Twenty-two of these 65 enquiries declined to be answered, or the applicant resigned.

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The great post-school debate

The Great Debate on schools, which begins in earnest today with the first of the Government's regional conferences, ought not to be left to teachers, industrialists, professors of education and Whitehall mandarins. The universities and polytechnics have a crucial role, too. For higher education is one of the major consumers of school leavers and, without its cooperation and understanding, many of the reforms that are being proposed for the schools could be still-born.

There is a tendency in university circles to assume that the debate is about how the schools can be persuaded to return to the academic standards of former times. The result, it is assumed, can be nothing but good for the universities. But these are not the terms on which the Prime Minister launched the debate in his Ruskin College speech nor are they the terms on which the Department of Education and Science has continued it in the guidelines it has issued for the conferences. A quarter of the conferences' time is to be concerned with "School and Working Life" and in its background paper, the DES notes the criticism that "the school system is geared to promote the importance of academic learning and careers with the result that pupils, especially the more able, are prejudiced against work in productive trade and industry."

If this criticism were to be met, the implications for higher education would be momentous. Britain has the shortest first degree courses in the Western world precisely because the schools promote academic learning. British universities have traditionally relied upon school sixth forms to do half their work for them, and these in turn have relied upon the lower schools to prepare students for their work. The cost of three-year degree courses in physics and chemistry, for example, is a school science syllabus that starts tackling the hierarchy of obstruct scientific concepts at the age of 12 or 13. The cost of high levels of writing proficiency in foreign language students entering university are school courses that neglect oral competence. The cost of aborting university mathematics courses at a high level are schools that neglect the practice and application of basic manipulative skills.

The most striking development in British schooling since the War is that more schools and more pupils have undertaken a more academic approach to more subjects. Why else would passes in the predominantly academic O and A-level examinations have risen so dramatically? Arguably, this is why employers find that school leavers now lack more practical skills. The school day, after all, is finite. More time spent on acquiring O-level French or O-level chemistry must mean less time spent on basic skills.

The advent of the comprehensive school may have diluted academic learning but, more significantly, it has spread it more widely. Had the secondary modern school been retained, it would have made little difference. Now that higher education is open to around 20 per cent of the age group, few teachers would be prepared to deny their pupils the opportunity of competing for the spoils, even if it means a syllabus that leaves them ill-equipped to take advantage of the consolation prizes.

Schools are unlikely to introduce more practical curriculum voluntarily so long as a high-level academic preperation is necessary for entry to higher education. A-level courses in engineering science have already flopped because university departments, even engineering departments, have continued to insist on A-level physics. If, on the other hand, a practical curriculum were imposed on the schools through some common core curriculum, the universities would be the losers. Either way, it is in the interests of both parties — universities and schools — to have a spokesman for higher education involved in the debate.

And, at the same time, universities ought to be having their own Great Debate, about whether and how their own courses could be made more practical and worldly. *The TIMES* will be exploring this issue in a series of six articles, beginning with Professor Chilver's contribution this week.

Resources for science

Ever since the Science Research Council took over responsibility for funding scientific research from the Department of Scientific and Industrial Research in 1965, the council has faced the problem of reconciling support for research programmes in its own establishments with that for the scientific activities of universities and polytechnics. Last autumn's debacle over the mounting costs of the CERN subscription—when the falling value of the pound led to a temporary moratorium in new research grants, not only in high energy physics, but across the whole field—highlighted tensions that have existed for years. And although in this case a suitably face-saving formula was eventually devised, no satisfactory long-term solution has yet been found.

The problem is not merely one of money; nor is it confined to subscriptions to international scientific bodies, many of which can be legitimately defended on grounds of cost-effectiveness. The real problem, as Dr Norman Dombey argues in his discussion of the CERN issue (page 11), lies with the policy constraints implied by a long-term commitment, to particular lines of research requiring large investment of capital and manpower, and the inflexibility of funding in which this can result if carried out to isolation.

Back in 1966, the Council for Scientific Policy warned in its first report that: "We must learn how to maintain scientific vitality and excellence on relatively stable economic resources. This means a greater readiness to redeploy existing resources and manpower upon new projects and generally a much greater flexibility of employment and acceptance of change than has always been achieved in the wet phase of rapid growth."

Yet as one branch of science after another has learned in both scale and capital-intensity, what has happened has been precisely the reverse. The need to maintain commitment to a few selected lines of research has increasingly restricted the freedom of the SRC to support university-based programmes of a more modest nature. Plans to build a Nuclear Spallation Source at the council's Rutherford Laboratory, for example, are only the latest of a string of proposals—including that for an electron positron intersecting complex (EPIC)—whose ease seems to rest less on scientific need than the demand for new tasks for scientific and technical manpower. (In this context, there is a certain logic in the French proposal that the EEC's Joint European Torus (JET) project should be sited adjacent to the CERN laboratories in Geneva, which could be facing the same problems as the Rutherford Laboratory in 15 years' time.)

The blame does not lie with the SRC, given the difficulty of the balancing trick which it has been asked to perform. Nor is it likely to be solved merely by giving science more political muscle—for example by appointing a minister for science, as suggested by the select committee on science and technology.

What is needed is the revival of a body similar to the old DSIR, which could take over the long-term commitment to major facilities such as CERN and the Rutherford Laboratory. It would then be possible to deploy the resources of those facilities within the overall context of the country's scientific and technological effort and leave the SRC to concentrate its energy on supporting science and engineering in Britain's universities and polytechnics.

LETTERS TO THE EDITOR

Max Beloff and the AUT

Sir,—We of course regret any resignation from the Oxford Association of University Teachers, especially of such a long-standing and distinguished member as Professor Beloff. On his reasons (*TIMES*, February 11), I would like to make it clear that the Oxford AUT condemned the agreement with the National Union of Students to which he refers on the grounds he gives; we submitted a motion of rejudiation for the December council; and the agreement is not recognized by us.

On affiliation to the TUC, while it may be regrettable that a professional association must look more and more to the realities of bargaining, it has to be recognized that to continue outside the body which speaks with the strongest voice to the government of the day as far as wage and salary earners are concerned is to put ourselves at an increasing disadvantage.

The universities themselves are being pushed inevitably into an "industrial" situation in their relations with their staff, academic and non-academic alike, and the AUT is the only body which can cope with this on behalf of the academic and academic-related staff. This need not entail any lack of loyalty to the idea of the university.

I know nothing of the position of the University College of Buckingham, but I may venture that on the face of it there would seem to be no reason why the staff there should not form a local AUT. But without seeing the reasons given for the denial of this, no further comment would be proper. I note that Dr Brenner (*TIMES*, February 11) does not refer to this important matter.

But while Dr Brenner's piece is mainly a somewhat pedestrian account of AUT work, and unobjectionable for the most part, she should acknowledge that there are some very cogent points in Professor Beloff's article.

In particular, her happiness with the expansion which Professor Beloff criticizes, and her total acceptance of the Robbins view of the universities, are to many of us utterly deplorable attitudes. Dr Brenner is not directly to blame for the headline you gave her—"we must continue to forge links with the working class"—but, cant as it is, there is no particular reason to doubt that it represents her own views and those of some members of the AUT executive.

In essence, Professor Beloff is right; it can only be regretted that he has chosen the lonely and hopeless path he has, instead of staying in the AUT and helping the men and women of good will within it.

Yours sincerely,
JOHN GILLARD WATSON,
Honorary secretary,
Oxford Association of University Teachers,
41 Wellington Square,
Oxford.

First destinations

Sir,—In Sue Reid's front-page report (*TIMES*, February 4) the statement is made that "70 per cent of Council for National Academic Awards graduates from sandwich courses and 43 per cent of those on full-time courses were directly into employment on leaving polytechnics compared with 40 per cent of university degree graduates".

As I have pointed out before the figures for sandwich courses are about the same for polytechnics and universities and so are the figures for graduates from traditional full-time courses in both sectors. The differences are not between universities and polytechnics in this respect, but between traditional full-time courses and sandwich courses, of which there are more in polytechnics.

Yours faithfully,
S. L. BRAGG,
Vice-chancellor,
Brunel University.

History teaching

Sir,—Dr Moore's depressing picture of history teaching (*TIMES*, January 28) seems biased by his concentration on the general pattern of his failure to stress the exceptions in Cambridge history departments, including the one created but not imprisoned by Tout, and at least those of York, Birmingham and Sussex, are surely worthy of his appreciation. The fact that such departments are to a minority is no, good reason to leave them unmentioned. And why should history teaching be judged simply by what the majority of departments do?

Moreover, the general pattern seems less influenced by Oxford than he suggests. For example, nowadays, according to D. Bloys, the majority of departments provide a compulsory coverage of British history in the Oxford examiner is only slightly to excess of the departments requiring a compulsory thesis in the Tout manner. If the latter is justifiably dismissable as "only a handful" then so is the former.

Compared with most history syllabuses, Oxford's seems idiosyncratic, not the model (in spite of the common tendency for history courses in British universities to be determined by period and place rather than by the natural boundaries of a subject), and represents an extreme to which few history departments have ever subscribed, even though many of their staff have been Oxford graduates who, having been cast out of what they felt to be paradise, sought consolation thereafter in seeking to implant Oxford ways.

Given the tendency these days to base courses on subjects rather than periods, the growing number of departments which allow course work involving the investigation of primary sources to influence heavily the classification of the degrees, and also the pioneering work of the Open University in developing teaching aids for history courses, there seems to be some hope of liberation from the past.

Yours faithfully,
MICHAEL BISIE,
History department,
Manchester University.

Ed tech funding

Sir,—Derick Unwin's comments regarding the lack of Government funding for educational technology reported in your columns (*TIMES*, February 11) reflects a view that deserves attention. However, I find that part of the argument fails to grasp the essential truth. We do not want, nor do we need, educational equipment . . . leading developments".

Without going into the variety reasons why educational technology has made slow progress in Britain (for example, customer resistance and an inability of researchers to communicate with decision makers, as opposed to other researchers, and so on) it should be made clear that investment in technology per se is not an answer. Have we not learnt from such folly? Huge investments in closa circuit television, paid off. Surely there cannot be a better example of misplaced faith in the power of capital and technology to solve educational problems.

It would be foolish to imply that we are overfunded. We are not, but we are as Unwin goes on to point out short of a theoretical base.

Yours faithfully,
RAYMOND McALEESE,
Editor,
Programmed Learning and Educational Technology,
Department of Education,
Aberdeen University.

Senate layme

Sir,—The letter from J. C. Cook on the role of senate in London's participation [illegible] which are not satisfied [illegible] scheme he supports (*TIMES*, February 11). He mentions [illegible] cil of Brunel University [illegible] ing of 37 teacher [illegible] neglects the fact that in the [illegible] of London Court has only two [illegible] ers from any source out of [illegible]

He correctly points out [illegible] ature is the supreme academic [illegible] ity. Why then are there [illegible] people on it? The school governors is on the financial [illegible] the court, on which there [illegible] present 10 out of 37 places [illegible] remaining being the elected [illegible] four heads of schools and [illegible] fessors.

He says that the senate [illegible] convocation is that it has [illegible] cers of the university at [illegible] ever, it can hardly be [illegible] represent a lay element [illegible] reasons. This element is [illegible] derived from the locality [illegible] for example local authorities, unions, and businesses. The [illegible] tion of University Teachers [illegible] vocating that the TUC and [illegible] federation of British Industry [illegible] other bodies, should have [illegible] tatives and take some part [illegible] university both for the help [illegible] can give, and for a better [illegible] standing of each other's [illegible] view.

The qualification for being [illegible] to do this job is their ability [illegible] not whether they have [illegible] or not. Some convocations [illegible] may have these properties, [illegible] tions, but only incidentally, [illegible] give all the appearance of [illegible] busybodies, who collect [illegible] berships like pelts. Many [illegible] be disqualified if there [illegible] quirement that their degree [illegible] many was not in the dim [illegible] past.

Lastly, the present [illegible] (faculty) members are [illegible] sors, with no other [illegible] granted. According to [illegible] these senate members do [illegible] the AUT view that the [illegible] staff are unrepresented. He [illegible] calls "narrow and [illegible] If our senators agree, they [illegible] speaks for itself. If they [illegible] let them speak out, but [illegible] that the senate meetings [illegible] these august persons come [illegible] last only 12 minutes, [illegible] they do not have time to [illegible] this point.

Yours faithfully,
RICHARD WILSON,
Secretary,
London committee AUT,
1 Pembridge Road, London W.

Future of physics

Sir,—I was, naturally, very [illegible] to read your third [illegible] (*TIMES*, February 4). The [illegible] and council of the Institute of Physics are well aware of the declining number of students reading physics in the universities, polytechnics and colleges, and on the lines you suggest.

We have, for example, produced a leaflet for distribution in schools which has been very well received and over [illegible] have so far been sent out. [illegible] leaflet, giving career [illegible] illustrating the diversity of [illegible] open to physics graduates [illegible] preparation.

It should be remembered that there has been no decline in the numbers taking A-level physics in recent years and [illegible] English and mathematics [illegible] A level entries. What is [illegible] happening is that more [illegible] are studying physics to the second [illegible] as a support, for, other [illegible] This emphasizes the importance [illegible] many other subjects [illegible] engineering and [illegible] physics.

While we in the Institute [illegible] that the study of physics [illegible] excellent education, we [illegible] that it is important that the [illegible] be kept alive by [illegible] research activity and [illegible] grounds for concern on [illegible]

Yours faithfully,
LOUIS COHEN,
Executive secretary,
The Institute of Physics,
47 Belgrave Square, London

more letters page

Dr Henry Chilver

Henry Chilver, vice-chancellor of Cranfield Institute of Technology, contributes the first of a series of articles on higher education and the needs of industrial society

'Relevance' must be seen in a long-term perspective

In the continuing debate of the nation's economic problems, education—all too belatedly perhaps—finds itself in the arena of discussion. In recent pronouncements the Prime Minister has made reference not only to balance-of-payments and industrial relations problems, but also to the wider question of how our education system should help productive industry and the generation of the nation's wealth.

The Confederation of British Industry, in a recent report, openly criticizes educational attitudes to productive industry. A recent report of the Select Committee on Science and Technology discusses exhaustively the apparent failings of higher education and research in the engineering and science-based industries.

That productive industry is now so squarely in the centre of national politics, and is bringing education into the discussion, is itself an important development in our thinking about our present national situation. In this discussion, what are the fundamental problems for education and, in particular, for higher education?

At the outset, we have to admit that throughout education generally in Britain, the role of productive industry in building up national wealth is very ill-understood. Since the Second World War, schoolteachers have been very successful in bringing new concepts into their teaching: young people are only too conscious (and correctly so) of the need to conserve the environment and of the importance of social welfare in a humane society.

But, alas, teaching has not grasped the vital importance of trading with other countries so that we can contribute to international development and, in the process, increase our own wealth. Perish—and I write not only in an academic but as one connected also with industry—our own industry is to be blamed for this; industry describes itself in public in terms of "profits", "loss" and "growth", rather than demonstrating the way in which productive industry enables us to develop the resources necessary to finance the widening range of social programmes most people wish to see developed.

Some attempts are being made to remedy this, and it is encouraging to see the work of CBI in its programme "Understanding British Industry". But a major long-term task ahead of us is demonstrating to teachers the vital social role and relevance of productive industry.

Before we look at the problems which are posed for education and educationists, it is worth examining briefly the nature of the fundamental problem facing productive industry at the present time. There is probably no single cause of our economic ills; although many possible causes have been voiced on political platforms and in the mass media, it is more than likely that our present difficulties are based on an accumulation of factors, leading to a declining performance of manufacturing industry in Britain.

For some years the country has had a deteriorating balance-of-payments position; this in itself is a function of the export performance of manufacturing industry, and although devaluation has put exporters into potentially strong positions in world trade, it seems that the country's export industries in general have found it more difficult to operate in an increasingly competitive world; this has led to an inevitable deterioration of our balance-of-payments.

Since the Second World War we have seen many different economic and monetary control mechanisms introduced to curb booms followed in an attempt to expand overseas trade; one possible effect of these controls has been that home demand for many of our manufactured goods has not been guaranteed sufficiently strongly to give the country a solid exporting base. Again, we have failed to keep abreast of the capital investment needs of manufacturing industry in comparison with other industrialized countries.

Factors such as these have meant that we have not been in a position to establish productivity levels which other manufacturing countries have achieved, and, proceeding in this way, we can isolate a whole series of factors which have contributed inevitably to a relative decline of our productive industry amongst the world's competitors in manufacturing. Our serious national position is the result of "cumulative" causation; no single factor is wholly responsible.

When we consider the implications these problems have for higher education, there is an immediate danger that institutions of higher education will be obsessed with trying to tackle short-term problems. It is much more important that educational institutions think most deeply about the longer-term issues.

This is so for at least two important reasons: first, education of people is inevitably a process requiring a long time scale; second much of the research and many of the new concepts emerging can only have a long-term impact on industry.

In the short term, and over the next two to three years, it is perhaps most important that teaching in higher education sustains the strengths of our industrial economy. All too often the debate on the industrial situation has focused on the weaknesses of our industrial economy, and on the remedial actions which are needed to eliminate these weaknesses.

There is a serious danger in this that the strengths of our industrial economy are neglected, and that institutions of higher education may fail to support these in the longer term. Where, in the short term, deficiencies in the skills needed by production industry can be identified, there is a need for quick "retraining" of appropriate people, and it would be very sensible for public funds to be used extensively, in the present crisis period, to encourage retraining programmes; government support of the Training Services Agency is one sign of official backing of this approach.

In attempting to remedy some of the obvious deficiencies in trained skills, institutions of higher education should be wary though of over-responding to, inflated statements of "needs" at the present time; over long periods of time, there have been "stop-go" attitudes by industry in the recruitment of skilled staff, and it would be dangerous for the educational system to over-respond to this fluctuating demand to an extent of planning programmes to meet demands which industries may not be able to sustain in the long-term.

If we look beyond the short term, and on to the medium term of three to five years ahead, it is this period higher education has more time to reflect its thoughts about its role in productive industry. Within this timescale we have time to consider—in greater depth—the present strengths of our industrial economy and to take positive steps to ensure that these strengths are maintained and developed. We should also be able to consider ways in which we can meet likely gaps in developing fields, as for example in production management and energy conservation.

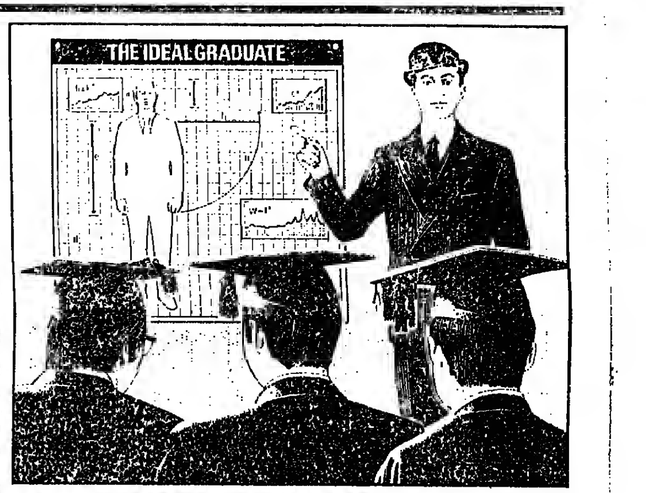
In the medium term, we must encourage more flexible employment attitudes and these need to come through in teaching. Both universities and polytechnics should develop wider programmes of less formal, non-degree studies relevant to developing technologies and management; some beginnings should be made in this period in areas such as manufacturing, power flow and manufacturing industry and other service areas.

Role of manufacturing

In this medium-term, there is a need for the professions related to industrial technology, including both engineering and scientific professional bodies, to review their education and training philosophies and standards, and to ensure that these are relevant to our long-term needs.

It is sometimes argued that employers of professionals should be the main force for reform of professional education and training; if this is so, then Government—which is now one of the largest employers of both engineers and scientists—is in a key position to encourage reform in appropriate areas.

Education will have a long-term impact on industry, and in particular on manufacturing industry, if "education" can understand the role of the manufacturing function and the need for this in a modern industrialized society. We cannot teach the relevance of the manufacturing function solely in terms of the need to meet the demands of a consumer society.



Indeed, such an approach would achieve no success amongst young people, so many of whom are very critical of the consumer society and the profit motive within it. It must be shown that manufacturing logically enriches the lives of people both in Britain and abroad.

In the long term there is particular need for the country to understand more fully the role of scientists in industrial technology. Much of the advance of industrial technology in Britain in the nineteenth century was due to the work of scientists bringing new concepts into manufacture and service functions.

There is a danger in the present climate, when short-term problems are seen to be ones of engineering rather than science, that the role of the scientists may be under-rated in industrial technology generally.

In the long term we shall see more teaching activities in higher education conducted *with* industries rather than outside them. This does not mean only an extension of sandwich courses, but the involvement of teachers more widely within industry itself bringing in industries wider knowledge of new developments and ideas.

The linkages that universities and polytechnics have with industry at present are weak; one indication of this is the very small (and probably declining) amount of research which is commissioned by industry within universities and polytechnics.

In addition to teaching and research, institutions of higher education should take on a more disseminating role in society; they tend at present to retain knowledge within themselves and to publish this in rather narrow and esoteric channels which are not easily intelligible to potential users of ideas.

In the long term we shall need to organize ourselves nationally to be more effective in teaching and research in engineering and science; it is not at all clear that 75 or so independent institutions of higher education, each competing for scientists and engineers, and each adopting different policies, really helps the country to attain a high standard in industrial technology; there is a need for coordinating teaching programmes as well as research.

In higher education there is a need, long term, for reform of postgraduate education in science and engineering, either through institutions of higher education looking more ethically inward (perhaps through UGC) or with the help of the research councils.

The Science Research Council, in its policy, has always been torn between science and engineering, the one seen as the advancement of pure knowledge and the other as the application of science. This approach is fundamentally unwound; it fails to see the importance of both pure science and applied knowledge in the advancement of industrial technology.

If the Science Research Council is to make a contribution to the industrial technology of this country it must have a much more effective policy in postgraduate education than it has at present in both science and engineering.

To encourage research of industrial relevance, there is much to be said for the SRC investing only in those institutions which have a record of research in industrial technology sponsored by industry.

Above all, there is a need for the development in higher education of a more cogent philosophy of the role of scientists and engineers in industrial technology than was apparently given to the country in the Robbins Report. That report based its ideas on the simple concept that the country needed a larger number of scientists and engineers, and that it was the universities' role to give them initial education and training.

Since then, the numbers of graduates in science and engineering have been swollen further by the polytechnics. Across the industrialized countries of the world, Britain produces one of the largest proportions of science and engineering graduates of any country.

It is very questionable whether our present problems have much to do with the numbers of graduates the universities and polytechnics are producing. Rather it is about the attitudes of staffs of universities and polytechnics, and thus of their students, towards industrial technologies, towards production, manufacture, service industries and so on; this is the fundamental problem facing higher education in the long-term.

Postgraduate education

What are the main points emerging from this discussion? I would summarize them as follows:

- In the present "crisis" situation, there is a danger of higher education over-reacting to the problems of industry, to a point where short-term needs may dictate long-term policies. In higher education, only limited responses are possible in the short-term, and, although these are important and indeed higher education should react quickly, the likely short-term impact of higher education on the industrial scene is limited. However, this does not mean that some steps cannot be taken immediately which could have long-term effects both for industry and higher education.
- There is a need to sustain and develop our present strengths in industrial technology and for the country not to be obsessed simply with overcoming weaknesses. Many of our present policies in higher education are essentially remedial in character and some of these could, anyway, be wasted; for some of our problems there may be no remedies.

It would be unfortunate, in this climate, if we were to neglect the strengths of our industrial technology and of those areas of higher education which underpin it.

- Present attitudes in higher education do not help higher education institutions to play a really effective role in industrial technology in Britain. Many educationalists have cynical views of industry and particularly of manufacturing industry. Moreover, their teaching does not encourage flexible attitudes to employment in the later careers of graduates.

Higher education in the future will need to work more closely with industry in teaching, research and dissemination. It will need to do this not only through the present structures within higher education, but through the wider use of specialized units for these purposes.

- There is a need for a more effective national organization in higher education of both science and engineering. In particular, there is a need for a major reform of postgraduate education in science and engineering, and for this to be related to long-term manpower needs in a more realistic way than is presently the case.

Any philosophy that is developed of manpower needs must appreciate the growth of service functions and the role of scientists and engineers in them as well as in manufacturing industry.

- There is a need to understand the vital roles of science and scientists in industrial technology, as well as engineering and engineers. The Science Research Council could also greater force to the industrial significance of its work by limiting a part of its funds to institutions which can show a record of industrially-sponsored research in both engineering and science. In this way SRC could finance basic research in support of industrially-sponsored research.

Next week: Dr J. A. Pope on education for industrial leadership.

BOOKS

Aboard the culture bandwagon

Approaches to Popular Culture
edited by C. W. E. Bigsby
Edward Arnold, £5.95 and £2.95
ISBN 0 7131 5834 4 and 5835 2

Approaches to Popular Culture follows hard on the heels of an even more heterogeneous collection of articles, also edited by C. W. E. Bigsby, largely concerned with American popular culture and its effect on Europe (*Superculture*, Elek: 1975). The assumption—so common nowadays as to have become almost an axiom—that there is some such universal as "popular culture" underlying, or transcending, particular forms is itself dubious; it seems far from self-evident that "the multiplicity of forms of popular culture should lead the analyst to a single underlying configuration of meanings" (Kress, p97). Even more dubious is the assumption that this metaphysical entity will spectrally manifest itself at the hypothetical meeting-point of an apparently random selection of approaches: political, sociological, structural, linguistic, Marxist, cinematic, musical, mythical, televisual, and so on. In fact, such a collection is more likely to be a heap than a whole; and this one duly fulfils that likelihood. Not that it is entirely without interest; just that it is entirely without direction.

Culture clash? The Salvation Army plays to people queuing for the Windsor Pop Festival in August 1972.

In one or two articles the vital distinction between "culture" as art and entertainment, and "culture" as the general way of life, is fleetingly remarked (though usually later overlooked). In the collection as a whole it is totally ignored. Now, something coherent might have resulted from a gathering of essays on popular culture in the first sense, whether "popular" was defined by quality, class or number—though it would then have been necessary to keep firmly and clearly in mind the distinction between "meaning" and "significance"—a distinction involving, respectively, investigation of a work's *identity* as an artefact, and its *effect* as a social factor; the latter being evidently considerably the more relevant for works defined as "popular" largely on grounds of mass-appeal (though mass-appeal need not always be associated with second-rate quality).

Equally coherent might have been a single long study of the usefulness or uselessness of the currently fashionable transcendental concept, "popular culture", or preferably, a single long study of some specific kind of popular culture (novel, film, song, or whatever) whether critically, in terms of meaning, or metacritically, in terms of significance, or both—in either case contrasting it with elitist culture of the same kind. Less coherent, but still useful, might have been a collection of separate studies of different varieties within a certain species: say, the visual arts, or magazines or B films.

What we actually have is a random selection of articles, many of them so flawed in style and logic as to give, first, the impression of hasty composition, and second, the impression that the editor's sole function was to hustle his contributors on to the bandwagon and ring the bell. Bigsby's opening chapter, which acts as a sort of general introduction (though it was not originally written as such) is paradigmatic: it has plenty of intelligent ideas but an incoherent thesis, a number of flaws of style and grammar (the "future" of three items, "the precise importance . . . are", and the like), it swallows structuralism uncritically, is scornful about those who define popular culture in terms of an opposite (without considering what distinguishing meaning would be left to a phrase without an opposite), and concludes with the triumphant assertion that:

> there is at last a clear sense both of the importance of the field and the need for an integrated assault on material which necessarily transcends both national boundaries and the divisions between disciplines.

Necessarily? Could there not be national popular culture? And while "popular culture" as a metaphysical universal, *if it exists*, must necessarily—indeed truistically—cross the divisions between disciplines, it seems by no means impossible to have self-contained studies of forms of popular literature or art or music. Indeed his own contributors provide examples—in a book which precisely does *not* provide the "integrated assault" desiderated. Moreover, this conclusion would apply just as well, or ill, to *non*-popular culture!

This essay is followed by Raymond Williams, weighty and ponderous, on "Communications as Cultural Science". Zev Barban then contributes "A Sociological Approach" so carefully qualified that it is difficult to see what it is leading to, and couched in jargon that is aggravated rather than alleviated by a habit of saying everything two or three times ("better said" . . . "in other words" . . .) instead of once clearly. This contains grammatical errors, and awkward flaws of argument. Thus it is asserted on page 48 that:

> the theoretical hypothesis that myths or folk tales are imaginative constructions, or unifying images of man's experience of the world and himself, cannot and does not explain the dynamic potential and universal appeal of these products of imagination.

Well, what does? The true explanation is given on the same page:

> In other words, myths constitute basic models in which man structures (identifies, classifies and interconnects), as well as evaluates, experience of the world.

A distinction, it seems, without a difference. This essay makes many other dubious and odd statements—none odder perhaps than that Kafka's works have "only minor artistic value" because their vision of man is non-typical. He does, however, come through to one of the most useful ideas in the book (not noted also by G. C. Kress): that a distinction may be made between *folk culture*, art or entertainment provided by people for themselves, as both producers and consumers, and *popular culture*, where they are only the consumers of a commercial product. (To put it another way, Barban's way, "the idea of popular culture in the modern era is almost inseparable from the idea and practice of instrumental rationality"!) His idea of an increasing "cultural unidimensionality", too, is a worthwhile one—though it is not the sole explanation for his inability to arrive at any viable definition of "popular culture".

Peter Burke advances the interesting and unconvincing thesis that popular art and ballads are better than the usual historical documents for understanding the life of the folk, as such documents are the product of *mediators* for the illiterate. Kress is clear and critical on structuralism but seems to occupy one of its basic assumptions uncritically: namely, that context is all, eventually nothing, in the production of cultural works.

Robert Lindge ("Linguistics and Popular Culture") goes further. He begins by accepting the structuralist assumption that popular culture, even of non-linguistic form, will have the same sort of generative generality that grammar has:

> This has important methodological implications for the student of popular culture. . . . Any sample will do, as the startling point of enquiry, and intensive analytic scrutiny becomes legitimate and well-motivated.

He ends by fiercely attacking the belief that "a literary critic, relying on mere intuition and a finely-tuned sensibility, could conceivably see everything that my analysis has brought out". In between, occur some quite extraordinarily fascinating analyses. Let us take a bit—a crucial bit—of the first paragraph of soft porn:

> I was leaning with my hands on the table . . . I put my feet through [my thighs] and then guide him into pussy. Then I started . . . and the table shook and quivered and the drinking glasses rattled and banged and several of them fell to the floor and my whole body was working and swaying and jerking backwards and forwards . . .

Hodge has the notion that pornographic literature cannot really cope with time and causality but has to make do with static previews about spatial relationships". These characteristics his non-intuitive analysis duly discovers:

> The effect of using intransitive throughout is to encapsulate the actions, expressing causality almost only through juxtaposition. So the table "shook and quivered", and then, immediately afterwards in the sentence, the glasses "rattled and banged", and there some of them "fell". It is as though these are all self-contained actions, which, however, follow each other. This science can also make the distinction between *post hoc* and *propter hoc*, sequence and causation. Interestingly, the real cause for the disturbance . . . is her "trembling" etc. It is this, it follows, that causes—it is as though somehow the fall of the glasses caused her to tremble. . . . This lady is pre-Newtonian.

True, finely-tuned literary critics would be unlikely to spot all the—or any of it. Nor would the ordinary man in the street who makes no claim to intuition or sensibility. But he might well see that "then he started . . ." gives a perfectly adequate and causal explanation for the rattling glasses (and for her trembling and jerking). The method of argument, too, would be familiar to anyone but a scientific linguist to language, one thing leads to come after another, but by looking all the items only by "and" (not "and then") the writer has clearly indicated that the rattling, trembling and jerking are all going on at once.

The same sort of criticism could be brought to bear on many of the remaining pieces. Even the best tend to be marred by ontological (and non-empirical) leaps for meaning to significance. In general the more limited the subject—as the excellent pieces on cinema, press, and popular writing in the thirties—the more valuable the essay.

Of the section called Image which consists of photographs of average Americans doing mundane things, nothing can be said. For nothing is said of them and a scattering of varying pleasures not automatically signalled by one purist or thesis. Pressured by this is the "Do-it-yourself" approach to popular culture. Here all that su is the volume as a whole and su are all such collections. Someone has to add up the sums and arrive at a total—and public it is a proper editorial function to ensure they are items that will add up.

Allan Rodger

Rimbaud's private meanings

Arthur Rimbaud: Illuminations
by N. Osmond
Athlone Press, £6.50 and £3.00
ISBN 0 485 14710 6 and 12710 5

Despite Edemble's uncovering of the mythic accretions surrounding Rimbaud's life and work, the difficulties of going back to the text still present, for an editor, the dangers and intricacies of an ever expanding Minotaurian labyrinth. Let it be said immediately that Dr Osmond possesses the courage of Theseus and the intelligence of Ariadne. He has had to wend his way avoiding the lures presented by differing schools of criticism: the metaphysical, the source hunters, the quasi-mystical socialism represented by Michelet, and the rigidity of the structuralists.

Osmond's own approach goes beyond typical British conjunctions, for his attempt to combine the structuralists' global and thematic technique with a "continual awareness of Rimbaud's known experience as a person in relation to society" makes very convincing reading, for he adds the rider that he has looked for private meanings rather than clandestine references. This method has the great advantage of eschewing biographical pitfalls (particularly geographical locations—an obsession with some critics) while maintaining the possibility of a "pure" reading.

This is of especial importance to students; the editor of *Illuminations* can at first be disconcerting, but this edition's rich introduction of scholarly with the history and of the manuscripts, their classification and interpretations, themes and patterns, imagery and interaction of mysticism and control. With 93 pages of commentaries, which do not intend, as intended, the reader to the text rather than reject a new generation of Rimbaldians will be reared, for this edition is ideally suited to teaching.

Scholars, of course, will carp on detail. But errors of fact are few and far between. The analysis of *Promontoire* is slightly forced as the poem is not divided into five distinctive parts since five stanzas are omitted from the text. A thematic index would have been a useful adjunct.

Michael Pakenham

BOOKS

Organic reaction mechanisms

Fundamentals of Organic Reaction Mechanisms
by J. Milton Harris and Carl C. Wamser
Wiley, £10.85
ISBN 0 471 35400 7

Third year university and polytechnic students in the United Kingdom could use this book, which is intended for senior undergraduates and for first year graduate students in the United States with some background in organic and physical chemistry.

Its title is a valid description in that it concentrates very much more on reaction mechanisms *per se*, rather than dealing with physical organic chemistry in general. Thus the main contents are arranged under the heads of the various reactive organic intermediates, with chapters on carbanions, carbinations, free radicals, carbenes, and excited states (i.e. photochemistry); there is also cursory mention of benzynes and nitrenes. This is preceded by a useful chapter on the determination of organic reaction mechanisms, and by two further chapters of introductory theoretical material—one on theoretical descriptions of organic molecules, and one on applications of theoretical methods.

These first two chapters seem to be wholly out of balance with the rest of the book, being at an altogether different level of sophistication and presenting a great deal of material that is never subsequently used. It is really extremely unlikely that the great majority of students of organic chemistry are going in do more than give this material a passing glance; how much better to have provided some real coverage of frontier molecular orbital theory that students might then have actually been prepared to try out for themselves.

Each chapter is well supplied with references in the original literature and a useful bibliography; there are also quite extensive sets of problems (with answers at the back). The general layout of diagrams and reaction schemes is not always very good. There are considerable differences in style and type size, even on the same page, for no apparent reason—many of the schemes would incidentally have been considerably clearer if set in smaller type. One feels that rather more thought and imagination could usefully have gone into the design of reaction schemes with great profit to the reader.

The general level and balance of the material—first chapters apart—is good, examples well chosen and explanations clear. The section on nucleophilic aliphatic substitution is particularly good—clearly a topic that interests the authors. The book has a number of virtues, but I suspect that colleagues in this country looking for a book to use as a course text will be after something with a slightly greater infusion of theory throughout the main body of material.

Peter Sykes

Maths play

Mathematical Carnival
by Martin Gardner
Allen and Unwin, £6.50
ISBN 004 793025 X

Martin Gardner had been writing his column about five years when I first started teaching, and a chance encounter in a library was enough for me to become a regular subscriber to *Scientific American*. Six books of puzzles and problems have previously appeared—this volume is the seventh, and it maintains the quality and freshness of approach that gives one the impression that the mathematicians whose work is described are personal acquaintances.

The usual balance of the old and new is carefully maintained—some serious mathematics that gives insight into research fields—like the discussion of the orders of infinity or the problems of hyperspace and the description of Hinton's cubes for making three-space models of sections of a hypercube—or some lighter stuff like the card tricks that depend on a knowledge of Pascal's triangle, or the penny puzzles that illustrate theorems in incidence geometry.

There are same more calculating tricks and algorithms, and the story of the strange connexion between the German numerologist Fliess, Sigmund Freud, and the cult of Blavatsky. We investigate also the real randomness of random numbers, and the extension of the magic square to the edges and diagonals of stars and polyhedra in general.

The "useless" square packing problems of Tutte and Conway are described—but I remember a similar attitude to the polyominoes and polyiamonds first described in Gardner's column, and now no one what o wealth of problems have been ganoroad from these simple ideas.

The construction of Plat Hein's superellipse and its generalizations is described, and there is a chapter on the art of Maurits Escher with its surrealist use of symmetries and false perspective and the reptiles that crawl up out of the plans to take a disdainful look at three-space before returning. And, as always, we have a collection of purely recreational games and puzzles, and that simple but serious game for doodlers "sprouts".

So many of these ideas are gems for the classroom—open-ended investigations, simple but non-trivial problems that can be tackled with elementary mathematics—suggesting variations, extensions, new approaches to old ideas and giving challenge, enjoyment and satisfaction at many levels.

We are all here, genius, cranks, academic, amateur—day-dreaming on top of a bus or doodling in a lecture—and such collections as this keep alive the spirit of play that underlies much serious mathematics.

Leo Rogers

Acceptable ecocentricity

Environmentalism
by T. O'Riordan
Pion, £7.50
ISBN 0 85086 056 3

Environmentalism as a social movement embraces nineteen with a wide-ranging set of issues, from the destruction of amenity, pollution, and the exhaustion of non-renewable resources, to anxiety about the socio-political consequences of the continuation of unbridled industrialism. This book begins with an account of two broad ideological perspectives on the environment—the ecocentric (which is acceptable) and the *technocentric* (which is not).

Ecocentrism precedes the familiar environmentalist message—concern with values/ends, low-impact technologies, and a search for stability through respect for ecological principles and natural laws. There is a strong element of Utopian anarchism which looks to small-scale self-sufficient communities (tribes) as a protection against the dehumanizing effects of industrialization and urbanization (heir to the philosophy of Kropotkin, Geddes and Mumford). By contrast, technocentrism is preoccupied with means, admires the comforting power of technology and is optimistic about the future. It pinces its faith above all on rationality, efficiency, and the role of professionalism and expertise.

Environmentalism, the author argues, is emerging as a social movement that has given "a powerful new impetus to traditional liberal socialist rhetoric". The contemporary trend of industrialism cannot continue. The central issue facing society is the "tragedy of the commons"—the destruction of what is enjoyed in common if left to the unbridled pursuit of self-interest. The rest of the book is the search for alternatives to the "ethics of the lifeboat", in which the haves are forced, as the price of survival, to protect themselves against the have-nots. The final chapter sets out some alternatives. A number of possible institutional reforms are considered: a new global order through the extension of international authority; centralized authoritarianism to contain the disruption generated by catastrophe, the decentralized authoritarian commune (*vide* China), and the (preferred) ecocentric anarchist solution of the self-reliant commune—a kind of post-industrial tribalism. In between are chapters devoted to exploring each of the main elements in the environmentalist debate—growth and its limits, the protection of amenity, the measurement of environmental quality, environmental perceptions and responses, the politics of environmentalism, and environmental law.

Despite its references to over 1,500 reports, books and articles (which makes it read in places like an annotated bibliography), there are some strange omissions, notably any discussion of Mary Douglas's perceptive and thought-provoking *Purity and Danger* and *Environments at Risk*.

As she observes, what is fascinating is the way in which environmental dangers are singled out and used as levers to influence behaviour. Applying her perspective to non-tribal societies, it is clear that the environmentalist movement gains its support from those who dislike many features of industrialism and wish to use environmental dangers as levers for change. But what is equally clear is that there is little agreement between the Hidden Utopias. O'Riordan's preference seems to be for a small-scale egalitarian self-sufficiency (though to be fair, he refuses to be drawn to give simple remedies). But some prefer order, hierarchy and inequality—a return to a feudal tribalism. And they, too, derive their prescriptions from ecology and nature. As a social movement, environmentalism is by no means united in its support for traditional liberal or socialist values. Threats of an impending crisis have also given an impetus to authoritarianism, both moral and institutional.

The lessons of biology are ambiguous. If Darwin emphasized competition, Kropotkin drew attention to the survival value of mutual aid. Environmentalism attracts the tough-minded, who would brook no nonsense and forcibly limit access to the commons. It attracts too the tender-minded who trust in the larger altruism and the reassertion of community. And each derives their inspiration from Nature. If modern man rejects God as the authoritative source of moral law, it is no good turning to Nature as a subjectless non-moral workman for his own salvation.

The book begins with the statement of two irreconcilable ideologies. It is permeated by ideological preferences. It moves uneasily between what seem to be detached academic observations and evaluation and prescription. Its weakness is that it attempts too much. It fails in its synoptical task (compared with the *Blueprint* or *Limits to Growth*). And of necessity it can do little more than give a superficial account of the component elements in the debate. But as a handbook—a guide to the complexities of the issues, and a warning against facile simplistic conclusions, it is an essential reference for students, planners, and politicians concerned to look beyond the next examination or the next election.

The pessimists could be right: the millenial crisis could be round the corner. Since both sides of the debate are permeated by ideology, it may be prudent to be cautious.

Stephen Cotgrove

BOOKS

Theory and practice

Considerations on Western Marxism
by Perry Anderson
New Left Books, £4.00
SBN 902 308 67 X

Engels (left) and Trotsky: Western and Eastern Marxism

This is a very bad book on an important subject. Whereas Mr Anderson's two earlier books, *Passages from Antiquity to Feudalism* and *Lineages of the Absolutist State*, display, for all their Marxist orthodoxy, a superb mastery of massive material, brilliant powers of composition, and a lucid style, this one just displays arrogance. It is dogmatic, shallow, self-confirming, pompous, and enormously condescending—both towards the reader, who is told only in an afterword that the author himself regards his whole text as basically flawed, and towards the ostensible object of Mr Anderson's concern, the "international working class".

Anderson takes it for granted that, at some—unspecified—level, the Marxist slogan of "the unity of theory and practice" expresses a self-evident truth, and proceeds to present the following picture. The "classical tradition" of Marxism extends, in two phases—a Western and an Eastern—from Marx and Engels to Lenin and Trotsky. The founders of Marxism, who constitute the (first) Western phase, had remarkably little contact with working-class movements and organizations in either the England in which they lived or the Germany in which they were most especially interested and largely confined themselves to corresponding with fellow-bourgeois militants.

The reason Anderson gives for the remoteness of original Marxist theory from proletarian practice is that the revolutionary upheavals of the time were largely artisan and peasant, rather than proletarian in character, while "the real emergence of industrial working-class parties occurred after Marx's death". Two questions immediately present themselves: how was Marx able to sketch a theory of proletarian revolution in the absence of a revolutionary proletariat? And what are we to make of the fact that, when they did arise (which in any case they did well before Marx's death), the industrial working-class parties were not conspicuously Marxist let alone revolutionary? These questions, which seem central to any serious treatment of the relationship between Marxist theory and proletarian practice, are not even raised. Instead, we are told that the evident gap between theory and practice was really their unity, though this unity was "uneven and mediate".

To return to Mr Anderson's narrative, he writes that "the rapid growth of working-class parties in Central and Eastern Europe and the stormy rise of popular rebellions against the ancien régimes of Eastern Europe now created the conditions for a new type of theory, based directly on mass struggles of the proletariat and integrated naturally into party organizations". The phrase "mass struggles of the proletariat" obscures the striking fact that these were largely artisan and peasant movements against pre-industrial propertied classes and autocratic regimes, rather than massive proletarian uprisings against industrial capital and bourgeois rule—remarkably similar, indeed, to the upheavals which had occurred in Marx's lifetime. What was new was not so much the practice as the theory: Lenin extensively revised Marx's theory so as to make it relevant to a predominantly agrarian society. Moreover, Lenin knew how to turn theory into propaganda—which is one important way of linking theory with practice. Anderson does not trouble to analyse the fact that Lenin somehow managed, for a brief moment in 1917, forcibly to link a drastically revised Marxian theory with the actually revolutionary practice of housewives, soldiers, peasants and factory workers.

Mr Anderson sidesteps these issues and moves on, instead, to his main topic, "Western Marxism" in the period since the Bolshevik Revolution and the abortive revolutions which the Russian one had inspired in Central and Eastern Europe. Here he pursues a truly remarkable strategy: he identifies "Western Marxism" in terms of the intellectual careers of a number of academic or semi-academic philosophers—men such as Lukacs, Adorno, Marcuse, Sartre and Althusser—and then reveals that in Western Europe after t World War Marxism becam mic and philosophical. With exception of Gramsci no theorist is cited who h serious, immediate or prol involvement with the working or with revolutionary mov With one exception, new de in Marxist economic the ignored, or noticed only i notes.

The only interesting thin his characterization of W Marxism is that Lukacs, h Marcuse, Sartre and Althusse for years been standard f readers of the *New Left Re*, which Mr Anderson is an One surmises that his sudd covery that these thinkers are utterly remote from the of proletarian revolution a crisis in *NLR* editorial poli can even sympathize with son's wish to set that crisi context of a world-historic juncture; but such priv semi-private fancies are s excuse for turning an int memo into a publication.

A small clue to the feeling in which Mr Anderson first vided by one of his chief sions. He observes that: " all the major theorists of materialism to date . . . bei intellectuals drawn from sessing classes . . ." and cond "It is impossible not to se pattern a provisional immat the international working cla whole, in a world-historical tive." On the contrary, it is but to see in this pattern teur immaturity on the part international Marxism, sle which sees in the working its great reserve army of without ever bothering to what the working classes about.

Helal L

Political violence in reality

Three Essays on Political Violence
by Ted Honderich
Basil Blackwell, £4.50
ISBN 0 631 17040 5

The declared object of these essays is "to inquire with an open mind into the morality of political violence, or really, political violence of the Left". To this end Ted Honderich opens his inquiry by considering the very different attitudes taken up by most middle-class persons towards the facts of political violence and the facts of social inequality which it is the aim of the violent Left to destroy.

Honderich believes, as I do, that much political theorizing suffers from a fundamental failure to relate itself to the crude, hard facts of life; and he insists on dragging to the centre of the normally fact-free philosophic stage the bitter realities of other men's truncated existences. The poor and black in rich societies live shorter lives than the rich and white; with the latter having two full lives for every single life of the poor in the poorest countries. "Time alive", Honderich rightly insists, "is not all that matters, but it matters very much indeed". It matters in terms of the individual human experience of tens of millions of persons, who too would like to live as long and as well as the readers of the *TIMES*.

In so far as we are aware of the facts of inequality we accept them, Honderich argues, as a familiar entrenched feature of the existing order within which we live; not as the direct outcome of deliberate action by "agents of inequality". Political violence, on the other hand, is for most of us something quite out of the ordinary run of our experience, perpetrated by identifiable men of violence as a challenge to the existing order. It constitutes a frightening threat to our familiar ways of life, and possibly to our very lives. Such a contrast of response, Honderich claims, is essentially irrational. In judging violence directed at the removal of inequality our concern should be with the respective sufferings of the victims of inequality and violence, and with the probability of the violence being successful in realizing its aim.

Honderich takes the argument a stage further in his third essay on the democratic violence of persuasion which he distinguishes from the undemocratic violence of coercion. The former, unlike the latter, is not directed to the overthrow of the democratic system, but seeks to redress the balance of political influence on behalf of the man wealth or power.

A brief review necessarily must of the argument used by Honderich to sup main thesis, but enough said to indicate its interest and importance. The weak ness of the essays is that not go far enough. I would *have forgone* the (which examines the propositions on political put forward by R. P. Wolff for a conside crucial issues left unanalysed is one to determine when violence is relevant to the tion of social inequality, from the realization of politi jectives at the disposal of ment or power group? Under conditions is "democratic violence" likely to gain, lose, public support for the of the underprivileged? What political violence in the past tributed to the reduction of in life spans and life styles the developed countries? If such questions receive some of answer Ted Honderich's clusions are unfortunately of use as a basis for practical recomme ment or political

L. J. Macful

BOOKS

Martial weakness

The Politics of the Italian Army
by John Whittam
Croom Helm, £7.50
ISBN 0 208 0197 3

The role of the military in politics has been covered as an aspect of the development of most modern European states, although a major exception to date has been a study on Italy. This may not seem a surprising omission, since the Italian army has no obvious claim to fame even considering its role in the Risorgimento, but as John Whittam shows in his carefully documented study the reasons are more varied and complex than are suggested by clichés about the Italian lack of fighting spirit.

He focuses on Italy's military performance in successive wars during the period from the Risorgimento to the First World War, and sets it in the context of internal political developments in Italy as well as international events. The result is a solid contribution to the early history of the Italian state.

His book discusses many aspects of the Italian army's role, from its state of organization following repeated attempts to reform and modernize it and its quality of leadership to its importance as a factor in Italian foreign and colonial policy. The army's war performance was repeatedly inhibited by organizational deficiencies and the lack of available economic resources to sustain a prolonged military effort, although Italy's military strength was too often wasted for reasons of prestige ventures abroad—with fatal consequences in the Libyan War of 1911-12, after which Italy had little time to recoup her exhausted forces before the advent of the First World War.

The fundamental reason for Italy's martial weakness emerges from this blow-by-blow account of her military affairs, namely her general absence of militarism. It was evident in the indifference of public opinion and of most politicians towards the military establishment, but a curious reflection of it was the regular tendency to national self-chastisement even among army leaders following military setbacks (such as Custoza in 1866, Adua in 1896 and Caporetto in 1917 to mention the obvious examples). It was these defeats rather than any real achievements by the army which entered national mythology.

This lack of militarism meant that despite political instability in the generation after unification the military never presented any serious challenge to the governmental leadership. There were few signs of support for authoritarian solutions, for army leaders maintained a *professional distance* although some of them acquired high civilian positions in government. Whittam suggests that they were recognized as part of the same established elite as the political leaders of the time.

Apart from the discussion of the army's activities in maintaining public order in the disturbed South during the 1860s, the question of its contribution to the political integration of the new Italian state (a topic crucial to the theme of the book) is not really spelled out although touched on occasionally. Indeed, the few references to the difficulties of social cohesion in the army resulting from regional attachments cast a brief light on the nature of the problem.

It is a pity in view of his interesting subject that these general themes are not given more prominence. Whittam provides many insights into Italian affairs of the period but he lacks a clear interpretative framework, and a conclusion to the whole book. Although an excellent piece of thorough research, it will for reasons of presentation not be read much outside specialist circles.

Geoffrey Pridham

From local to national identity

Nationalist Movements
edited by A. D. Smith
Macmillan, £7.95
ISBN 0 333 18185 9

Nationalism: The Nature and Evolution of an Idea
edited by Eugene Kamenka
Edward Arnold, £3.95
ISBN 0 7131 5874 3

Inherent in the concept of a nationalist consciousness is the idea that individuals who historically have identified with local sub-cultures come to recognize that they are primarily members of the nation, rather than of their tribal, ethnic, religious, linguistic or regional groups. The definition of "national" characteristics, as both Kamenka and Smith emphasize, is initially made by members of socially unrepresentative "elite" groups, often as a result of their perception of the disunity and political weakness of one social group in comparison with some already more highly organized entity.

Kamenka insists on the need to grasp the phenomenon of nationalism "in all the complexity of its historical and social development". According to Smith, the main analytical problem is that of "the social penetration of nationalism beyond the elites". None of the contributors really faces up to the problems involved. Most seem to subscribe to a diffusionist model of nationalist development. Integrating action in the form of propaganda and organization by elites, and that taken by the bureaucracies of established states, combines with the development of a market economy to increase inter-regional contacts and the diffusion of universalist values including a national consciousness, within certain geographical limits. However, variations in the characteristics and aims of the local socializing agencies, and the spatially uneven development of modernization suggests considerable variation in the types of conditions which facilitate or obstruct national development.

Unfortunately, the contributors are mainly content to remain at the level of vague generalization and broad sociological categories: both of which lack an adequate basis in empirical research. The repeated reworking of the established categories of analysis does not seem likely to provide enlightenment. Broad social structural categories are inadequate for the analysis of cultural changes occurring within specific historical periods and localities.

Rennie Warburton considers the cases of Switzerland and Canada, especially the tensions arising in regions with self-conscious minorities aware of geographical inequalities in the distribution of wealth. He highlights the problems of the transmission of economic growth from dynamic to stagnant regions and the crucial importance of political autonomy as a means of controlling development.

Even in the oldest established states feelings of inferiority among groups with a surviving ethnic identity might lead to political disintegration. His is a timely warning that the political core which ignores the specific needs of peripheral groups, particularly where it treats them as culturally inferior, risks an eventual challenge to its supremacy. As the core is likely to sustain a demographic and electoral majority, unless it is prepared to accept voluntarily greater autonomy for peripheral groups, their political agents might well be forced to go beyond normal political means. The long and continuing historical cycle of national integration and the creation of a bureaucratic state is thus likely in some areas to be modified by decentralization and, if this fails, by the disintegration of old-established entities like Canada and the United Kingdom.

Roger Price

Is it a movement or a party?

Social and Political Movements in Western Europe
edited by Martin Kolinsky and William Paterson
Croom Helm, £9.95
ISBN 0 85664 350 5

It is always difficult to get the right balance in multiple-author books, and this one is no exception. Some of the authors make an attempt to study "the relations of movements and political parties, and the interaction of movements and political systems", ie, to do what we are told by the editors is the main objective and distinctive approach of the book. Kolinsky, Pridham, Hine, Paterson and Smith all make some effort to work within the bounds laid down by the editors, but, as Hine wisely admits in his essay on trade union movements in France and Italy, the distinction between "movements" and "parties", both politically and socially, is often far from clear. Perhaps it would have been best if all the authors had read the editors' interesting review of the literature on movements and Smith's essay on political and social movements before writing their own pieces. Alternatively, it might have helped if Smith's conceptual essay had preceded, rather than followed, the various case-studies.

However, my main criticism of the book is that it falls between two stools. Either the introductory sections on the various political and social movements under discussion should have been more comprehensive, or the case-studies should have been. Two examples will suffice: Paterson's essay on the German SPD is interesting and informative, although the attempt to distinguish between the party and movement "dimensions" seems rather contrived in parts. But it is simply not good enough to cover the whole of the rest of European Social Democracy in less than one page. Likewise Kolinsky's chapter on the inter-war Fascist and Nazi movements in Italy and Germany is a concise and comprehensive case-study, but why is there nothing about Spanish and Portuguese fascism and nothing about the Italian MSI in a book which purports to be about European political movements? Again, what has happened to other Europe-wide "movements" such as communism and regionalism? It would perhaps have been better if the editors had claimed less for the book and focused on fewer subjects more thoroughly. The idea behind the book is interesting, and several of the essays are stimulating, especially Pridham's, Hine's and Smith's, but overall it seems to me that the editors bit off rather more than they could chew on this occasion.

The editing and proof reading in some essays, notably those by Hellmann, Sprinzak and Bell, is poor. They are sloppily constructed and full of the sort of errors which should have been eliminated. Surely it is not too much to ask that in an academic book sentences should have verbs, meaningless statements be omitted, and well-known proper names such as Mitterrand, Lassalle and Krivine be correctly spelt. Perhaps we have to put up with social science jargon these days—words and phrases such as "embourgeoised", "relativise", "delegitimising", "out-delegitimise", "counter-fragmentary" and "radicalised anergy". On the other hand, perhaps we do not: the essays by Hine, Pridham and Smith in particular show that it is possible to put forward interesting and stimulating concepts without recourse to jargon.

R. E. M. Irving

BOOKS

Why parties exist

Parties and Party Systems: A Framework for Analysis
by Giovanni Sartori
Cambridge University Press, £15.00 and £4.50
ISBN 0 521 21238 3 and 29406 2

Parties and Party Systems: is the first of a two-volume work to which Professor Sartori has devoted most of the last 10 years. It is, indeed, the first major book on political parties for a generation, since, despite the vast number of new parties, new countries, and monographs on these parties and these countries, no comprehensive book as yet has replaced Duverger's classic of the early 1950s, *Political Parties.* Indeed, since the first volume of Professor Sartori's work does not cover internal party structures but concentrates on the rationale for the existence of parties and on party systems, Duverger's book is still not superseded. But on party systems we now have a more sophisticated and more modern classification. Little emphasis is given to electoral systems (even perhaps too little); emphasis is placed on a complex distinction between types of systems of more than one party—and not on the old distinction between two and multi-party systems.

Yet, despite its wider and updated coverage, the work suffers from three major defects. First like Duverger's book, it concentrates too much on Europe and North America: altogether there are seven pages on Africa in a book of over 350; countries such as Costa Rica, Venezuela, or Sri Lanka, which had long periods of "competitive" party development are not mentioned at all while Iceland (200,000 inhabitants) and Luxembourg (400,000) are referred to in a number of instances. The work may not be ostensibly devoted to Europe and North America; it is documented by examples from, and concentrates on problems and developments of these areas.

Second, the work has an almost exclusively institutional scope. There is little on the socio-economic environment in which parties operate. The first part examines "why parties exist", but the "why" is entirely given in terms of "mechanical" or "procedural" reasons; parties are said to be channels of expression—but what they are expressing is not being examined.

The classification of party systems into two party, moderate pluralism, polarized pluralism is interesting and revealing: but we are not told why this happens. We do not know why the party systems of Sweden or Norway are different from those of Britain; even more seriously, we are never given any reasons for the existence of large Communist parties in countries such as Italy, France or Finland—surely a serious limitation. As during as it was believed that the number of parties was somehow mainly the result of a given electoral system, there was at least an element of explanation; if this argument is no longer put forward, broad social explanatory "variables" need to be given.

The third limitation is perhaps the most serious. Despite the fact that much evidence is presented, the book is in many ways an ideological work: it is more ideological than Duverger's was. Professor Sartori does not like single-party systems; he does not like Communist parties—either of the "Stalinist" variety or of the more flexible Italian type; he does not like African parties, which he feels are weak and have led to an "African labyrinth".

He is entitled to his likes and dislikes; but these do reduce the scientific character of the work. They lead to gross exaggerations: petitive party systems are to "express" while sloganisms do not. There may be truth in the distinction, but it would require a more careful examination. It is very simplified and not worthy of this work to state that "all" of parties (in the plural) are pressive communication" enables the citizens to exert the state", while "competitive party-state system provides communication network" for communicating to the rulers (p. 57). There are so many exceptions among systems of more than party and among those systems that a blanket judgement of this kind—which affects the assessment analysis—and the overall power of the work.

Thus we are left with an impression of malaise. There is much in this book which is good be there; it covers ground that needed to be covered and had not been covered before. But the "concept work" is considered to be inadequate. As it is based on ideology, not analysis. At times it becomes very close to sophistry—as when party systems are dogged by this title, presumably by their status. Often, one suspects, liberties are taken with facts as when the author refers to the consequences of the growth of the Italian Communist party and to admit that it is becoming a two, or even three party system. This criticism, fair, can be applied to many of the older "classics", especially those such as those of Michels. But since a century one might have hoped that political science would be beyond the "metaphysical" stage. Much advance has still to be made for this to occur.

Jean Blondel

The ambiguity of social democracy

A Short History of the Labour Party, Sir cdilinn
by Henry Pelling
Macmillan, £4.95 and £2.95
ISBN 0 333 19792 5 and 19793 3

British Social Democracy: A Study in Development and Decay
by David Howell
Croom Helm, £6.95
ISBN 0 85664 124 3

Academic writing on the Labour Party and movement has enjoyed a long and continuing boom. Few aspects of Labour in and out of office lack scalysts and it is difficult to think of even relatively minor episodes during the last century to which one or another scholar has not laid claim. Doubtless the recent liberalization of access to the party records will ensure the continuation of this happy state of affairs.

Dr Pelling's *Short History*, now in its fifth edition, was first published in 1961. It takes the story from the 1880s up to the resignation of Wilson in March 1976 and, given the volume's relative brevity (167 pages), the pace is on occasion rather breathless.

Additionally one could quarrel with some of the author's judgments: whatever else he was in 1929-31, Snowden cannot be called a "broken reed"; Lansbury was certainly a pacifist but it needs a keen ear indeed to detect his "Marxian undertones" and likewise the element of "Marxian Socialism" Pelling discerns in the 1918 policy statement, *Labour and the New Social Order*, appears only on the finest litmus paper. This aside the volume is well presented and the organizing theme, the leadership problem in a party with such disparate traditions and cumbersome structure, is a sensible one.

Howell's thesis is not dissimilar although developed at greater length and with much closer attention to the newly available minutes of various executive committees of the party. Seen from the perspective of the parliamentary leadership the major internal problem is that of controlling the associated and numerically dominant trade unions, while the major external difficulty is winning elections when a segment of its "natural" support betrays mature and votes Conservative. Until the fiasco of 1931 the trick was worked by a combination of trade union loyalty to the party and the "cloudy rhetoric" of Macdonaldism. From 1931 onwards a "social democratic perspective emerged" from the ashes of "betrayal" and the demands of men like Bevin and Citrine for reform within the broad structure of the existing society.

Howell traces in detail the emergence of a sketchy reform programme and concludes that by 1937: "those measures could be presented plausibly as first steps in a socialist transformation . . . yet the total sum of proposals could be seen as a blueprint for increasing the efficiency and reducing the acerbities of the existing society".

Whatever their ultimate consequences the proposed reforms helped to bind once more the unions to the party after their loyalty had been shaken by the events of 1929-31. Such reforms were carried through by about 1940 under the leadership of Attlee, Bevin and Morrison. Then the ambiguity of social democracy was revealed as involving a self-defeating ameliorative of social tension if reforms were not part of a consistent and coherent strategy of social transformation which indicated the relationship between reform and structural change.

In this predicament the immediate response in the early 1950s was to boast about 1945-51 and as a corollary adopt a "consolidationist" posture: a bit more of the same. The electoral failure of this tactic led to the revisionist phase involving acceptance of the mixed economy, a new emphasis on education as the prime agency of change, together with an end on Labour as the sole repository of efficiency and technological know. 1964-70 ended the revisionist and by 1972 "socialism" become the merest rhetoric, giving "no indication of what a Government will actually do" yet, one eight odd, of the unionists will do other Labour Party has finally not basic dilemma by shutting socialist component of a genuine, accepting the power structure of British political practice has "degenerated in a cynical manipulation of attitudes a systematic destruction own expressed values".

Howell's account of the Party, although it is broadly persuasive, involves a number of difficulties. First, it is by no means clear that the movement of ideas he detects at the top was shared by the party much below the second, I do not believe that the timid, parliamentary style of Attlee's critic perspective that Howell emerges after 1931 would be shared and it can certainly be argued before then. Indeed, is not clear in detail the same account of the suffered from the left of the Party since at least the 1930s the same is true of any reforming social democrat to achieve electoral success treason it would appear that democracy can never prosper.

Remedies to the problem included ideological reform, the ginger group, retreat to the wilderness, extra-parliamentary agitation and, in the case of Attlee, the realisation that the existing power structures could be generated on a variety of fronts. Just so, and although it is easy to say it in as many words the solution may involve the realisation that the power structure of British society, the most influential aspect of the Labour Party. Whose is IONE?

Robert McKenzie

BOOKS

Mixed bunch

Conservatism
by Noel O'Sullivan
Dent, £4.50 and £1.75
ISBN 0 460 10631 7 and 11631 2

The Conservative Opportunity
edited by Lord Blake and John Patten
Macmillan, £7.95 and £3.95
ISBN 0 333 19971 5 and 19972 3

Conservatism, on Mr O'Sullivan's definition, is a reaction to the Utopian claims of the Enlightenment and the French Revolution, and is more or less limited to the NATO area. Even so conservatives turn out to be a mixed bunch ranging from de Maistre to Daniel Bell, and they have an undisciplined habit of slipping away from the commitment to limited constitutional government which O'Sullivan sees as the essence of intelligent conservatism. Indeed O'Sullivan does not pay much attention to the conventional debates which preoccupied nineteenth-century politicians, but concentrates on the more profound original and abstract theories of communitarians, whose ideas so often tended towards an apolitical and reactionary Utopianism.

It is also true that some of the more effective and prescient critics of radical Utopianism described by O'Sullivan, such as Constant and Tocqueville or the classical market school, would usually be classed as liberals. For though they share with conservatives a scepticism about the perfectibility of man, and still more about his capacity for rational improvement through collective action, they do not share the tutelary or paternalist tendencies of most conservatives with their hankering after national churches, censorship and compulsory moral education. The difficulty about actual conservatives from O'Sullivan's point of view is that they generally went something grander and more fundamental in the way of authority or community, however derived, than the habits of political practice.

This problem reveals itself in the three main chapters of the book on French reactionaries, German romantics and English conservatives. Mr O'Sullivan handles the first two very well in the manner of the history of ideas: that is, by linking a succession of writers together by theme which he does neatly. He is a good expositor and effective critic. By contrast what he himself calls the intellectual messiness of English conservatism does not yield to this method.

There is not much mileage in the exposition of Disraeli's half-baked fantasies and to get at the relation between the thought and action of practising politicians requires much more attention to context than O'Sullivan has space for and a better basis than second-hand political history. The result is a catalogue of writers and witticisms of uneven merit and interest which does not hold together.

The implicit theme is in fact the loss of any distinctive conservative ideology and a drift into the acceptance and defence of liberal positions by those who call themselves conservative in politics. The conclusion one is obliged to draw is that the only true conservatives are English conservatives and that English conservatives are not really conservatives at all but sceptical, pragmatic, moderate, old-fashioned liberals.

James Cornford

ILP history

Dictionary of Labour Biography, Volume III
by J. M. Bellamy and John Saville
Macmillan, £20.00
ISBN 0 333 11115 7

Political biography is at once the most attractive and the most treacherous area of the historian's work, inviting concentration on major figures, highlighting certain episodes and administrations at the expense of others, and forcing the disparate mass of men and women serving political movements into a subordinate context, tailored to the cycles of individual lives. The history of the trade union movement, for example, has been dominated by the biographies of J. H. Thomas, Arthur Henderson, Walter Citrine and Ernest Bevin; yet, however much these seem to have typified their times, the mainly of the movement, within whose friendships, visions and hostilities their activity was conditioned, has been correspondingly obscured. In redressing this balance, the third volume of the *Dictionary of Labour Biography* reinforces the success of its predecessors in illuminating the density and complexity of the matrix.

For the sound reason that biographies are entered on completion by the research team in Hull University, the chronology of entries stretches across a wide period with in a few, very general themes, in this case chiefly the early history of the Independent Labour Party and the middle period of the Miners' Federation. To some extent, the historian of the working-class movement can therefore only be satisfied when the project is complete; but what it lacks in this sense, in comparison with the generational volumes of the *Dictionary of National Biography*, is more than compensated by its depth of scholarship, breadth of local source material, and meticulous editing—especially in the extensive bibliographies, and the editors' own contribution of detailed subject bibliographies attached to key entries. Failing the full-scale studies which the new economics of publishing may postpone for many years, the DLB does justice in particular to the miners' leaders, Clem Edwards, Robert Smillie, and A. J. Cook—the latter neither Beatrice Webb's "inspired idiot" nor the "raving, tearing Communist" of his opponents on the General Council, but, as the authors describe him, that rare combination of skilled trade union negotiator and "gifted revolutionary agitator".

It is interesting to see how many of Bevin's supporters in the 1930s campaign against the Communist party were fortified by their long years of service on trades councils; and how, contrary to much of what has been written, the great majority of ILP members mentioned here had substantial trade union bases.

Future volumes are, apparently, threatened, not only by the daunting price of £20.00, but by uncertainty about the grant on which the whole collaborative project depends. Publication is important as this for the study of British working-class history deserve all the reassurance that the SSRC can give; it will be tragic if continuity is not maintained.

Keith Middlemas

BOOKS

Crisis control

Crisis Management : Confrontation and Diplomacy in the Nuclear Age
by Phil Williams
Martin Robertson, £7.85
ISBN 0 85520 098 7

Despite the fact that crises are among the most regular and striking phenomena of international politics, the literature devoted to analysis of their nature and management is curiously thin. Dr Williams's study does not claim any particularly new insight into the subject but provides a coherent and sensible account of the present state of understanding of the field.

The crises chiefly used as basis for the argument are Cuba in 1962, the Middle East in 1967 and 1973, Quemoy-Matsu in 1958, and Berlin in 1958 and 1961. The treatment is through generalized analysis of modes of bargaining rather than through detailed historical narrative. The author looks in sequence at the role of nuclear weapons, techniques of decision-making, maintenance of control, and the uses of coercion and limited war.

Williams is interesting on Hitler as a crisis manager, a subject many writers carefully avoid because it raises some nightmare questions about the situation of the world if one of the decision-makers of the central balance were either reckless of war, or believed it actually helpful to his political objectives. Perhaps one of the few advantages of the nuclear age is that such an assumption is now less likely, or at least believed to be less likely, though no proof is possible. However, the comparisons with the situations before the First and Second World Wars are only made in passing: most of the analysis is confined to the nuclear age.

This is perhaps the major limitation of the book, for if the dynamics of crisis has a phenomenon which occurs in many relationships though its consequences are most serious in international politics) are to be fully understood, it seems to me that a wider assortment of case studies will be necessary.

There are a number of other minor points on which one might enter a few dissents. I would say he does not quite appreciate the degree to which the Soviet Union "lost" the 1973 Middle East crisis, looking at its long-term outcomes in the Arab world as they now appear. And perhaps he is over-optimistic in assuming that the conventions of crisis management rule out the use of violence, at least in the form of proxy armies, as with the Cubans in Angola. And one might wish for a more elaborate and sophisticated treatment of signalling and the uses of ambiguity. Nevertheless, for student groups making their first systematic approach to the problems of crisis and conflict in international politics this will be a useful and readable book.

Coral Bell

Guarantees of liberty

Liberalism
by D. J. Manning
Dent, £3.95 and £1.75
ISBN 0 460 10365 2 and 11365 8

It is tempting for a writer on political ideas to treat liberalism as if it had a timeless essence—the defence of liberty. Manning avoids this temptation, and gives us a complex picture of the liberal tradition as united by a family resemblance rather than by a single leading idea. Liberalism is not just about liberty (with which several other political traditions are equally concerned) but about particular guarantees of liberty which liberals typically believe are the only or least unsatisfactory representative government, division of powers, rule of law, competition.

Manning has a keen eye for this multiplicity of liberal themes. But the book is as much about ideology in general as about liberalism. The contention seems to be that ideologies have neither truth-values nor practical relevance; an ideology is not meant to yield knowledge but to guide practice; but this, he thinks, it cannot do either, because it is theory. The segregation of theory from practice is complete. When the liberal politician acts contrary to liberal ideology "there has occurred no divide between theory and practice, since they are altogether different things, and correspondence was impossible between them in the first place".

Ideology is treated as a mere epiphenomenon; as in vulgar misrepresentations of Marxism. Manning criticizes four attempts to deduce policies from theories—those of Locke, J. S. Mill, Spencer and T. H. Green. But the failure of those attempts should not surprise us as they appealed not to social science but to theology, utilitarianism, biology and metaphysics respectively. The general argument against theory affecting practice is weaker. "There is much that cannot be said, only done." If this means that talking about an action is not doing it, it is trivial. If it means that there are some practices that theory cannot assist, it is false.

Manning's view of ideology does not allow him to see the extent to which ideological differences involve contradictory explanations of the workings of society, each claiming truth. A dispute, for example, between a liberal and a socialist may not be about values at all, but about what promotes or obstructs their realization—state intervention, the pressure of the masses, or the power of the propertied. Manning tells us that the aspects of Victorian society objected to by conservatives and socialists were not seen as evils by liberals, but it is hard to accept this after reading Mill. They believed that these problems could be solved within the framework of parliamentary government and the market economy. That is a judgment about facts, not values.

Manning's account of ideology, in spite of his intentions, itself expresses an ideology: the irrationalism that denies the value of knowledge for politics.

Andrew Collier

Among this week's reviewers

Jean Blondel, professor of government at the University of Essex, is author of Voters, Parties and Leaders.

Coral Bell is professor of international relations at the University of Sussex.

Stephen Cotgrove, co-author of Science, Industry and Society, is professor of humanities and social sciences at the University of Bath.

Robert Dowse, reader in politics at the University of Exeter is author of Political Sociology and Left in the Centre.

R. E. M. Irving, lecturer in politics at the University of Edinburgh, is author of Christian Democracy in France.

L. J. Macfarlane is tutor in politics at St Johns College Oxford and is author of The British Communist Party: Origins and Development until 1929.

Roger Price, lecturer in social history at the University of East Anglia, has written The Economic Modernization of France 1730-1880.

Geoffrey Pridham, lecturer in politics at the University of Bristol has a forthcoming book, Christian Democracy in Western Germany.

Allan Rodway is reader in English at the University of Nottingham.

Leo Rogers is senior lecturer in mathematics at Roehampton Institute of Higher Education.

Peter Sykes is official fellow and director of studies in chemistry at Christ's College Cambridge.

Classified Advertisements

Index to Appointments Vacant, Wanted and other classifications

Universities

Universities continued

ULSTER:
THE NEW UNIVERSITY
SCHOOL of HUMANITIES

LECTURESHIP in WEST EUROPEAN STUDIES

Applications are invited for the post of Lecturer in West European Studies, commencing 1st October, 1977.

Candidates must have interests in German institutions, politics and society, and be able to teach at University honours level in German.

Salary scale (with FSSU/USS): £3,333-£6,885 per annum
The appointment will normally be made within the first three points of the scale.

Further particulars may be obtained from The Registrar, The New University of Ulster, Coleraine, Northern Ireland (Quoting Ref.: 77/24), to whom applications, together with a curriculum vitae and the names and addresses of three referees, should be forwarded not later than 25th March, 1977.

University of Strathclyde

Applications are invited for the

LECTURESHIP in the DEPARTMENT OF MODERN LANGUAGES

with a special responsibility for the LANGUAGE CENTRE.

Applicants should have a special interest in the methodology of language teaching and/or applied linguistics.

Salary scale: £3,333-£6,555 with placing according to qualifications and experience. Superannuation scheme.

Application forms and further particulars (quoting 2/77) may be obtained from the Registrar, University of Strathclyde, Royal College Building, 204 George Street, Glasgow, G1 1XW, with whom applications should be lodged by 4th March, 1977.

UNIVERSITY OF GLASGOW
DEPARTMENT OF POLITICS

TEMPORARY LECTURESHIP IN POLITICS
(TWO YEARS)

Applications are invited from men and women graduates for a temporary Lectureship in Politics, tenable for two years from 1st October, 1977. Applicants should have a special interest in the study of public policy and administration, with particular reference to economic affairs.

The salary will be within the range £3,333 to £4,811 per annum on the Lecturer A scale. Further particulars may be had from the Secretary of the University Court (Room 18). The University of Glasgow, Glasgow G12 8QQ, with whom applications (eight copies), giving the names and address of three referees, should be lodged on or before 15th March, 1977.

In reply please quote Ref. No. 8005. GG.

ABERYSTWYTH
THE UNIVERSITY COLLEGE OF WALES
DEPARTMENT OF LAW

Applications are invited for the post of LECTURER in LAW, tenable from 1st October, 1977.

Application forms and particulars available from the Registrar, University College, Aberystwyth. Closing date: 11th March, 1977.

AUSTRALIA
AUSTRALIAN NATIONAL UNIVERSITY
SCHOLARSHIPS FOR PhD DEGREE COURSE

Persons who hold, or expect to hold, a bachelor degree with at least upper second-class Honours or equivalent from a recognized University and who have a capacity for research, are invited to apply for Australian National University PhD Scholarships, tenable over a wide range of subjects in the Humanities and the Physical, Medical, Chemical, Biological, Earth and Social Sciences. Scholarships are available in any of the departments or units of the Institute of Advanced Studies which consists of Research Schools of Physical Sciences, Biological Sciences, Social Sciences, Pacific Studies, Chemistry, Earth Sciences and the John Curtin School of Medical Research, of the School of Oriental Studies (Faculties of Arts, Asian Studies, Economics, Law and Science), or in one of the University Centres.

Scholarship Benefits. The basic stipend payable is $A4,000 per annum (tax free), with additional allowances for dependents and living subsidies for scholars in addition, return economy-standard air fares and removal expenses are normally provided. The tuition fee will be remitted in respect of Australian citizens also eligible for Commonwealth Overseas and Research Awards.

Tenure. Scholarships are normally tenable for three years, and may be taken up at any time of the year.

There is no set closing date, but applicants from outside Australia are advised to apply at least six months before they expect to be available to take up a scholarship, if offered.

Full particulars and application forms are available from the Academic Registrar, Australian National University, Box 4, Canberra, ACT, 2601, Australia, or from the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

BRISTOL
THE UNIVERSITY
CHAIR IN GEOGRAPHY

Applications are invited from suitably qualified persons for the Chair in Geography which will be vacant on September 30th, 1977. The person appointed will be expected to take up the duties of the post at the beginning of the Autumn Term, 1977. Applications should be sent to the Registrar, University of Bristol, Senate House, Bristol BS8 1TH, from whom further particulars may be obtained.

CANADA
UNIVERSITY OF VICTORIA
British Columbia

The Department of History of the University of Victoria, British Columbia, invites applications for the following positions, effective July 1, 1977:

(1) Pre-Confederation Canadian History/Historiography.

(2) Chinese History.

Teaching duties will include junior and senior undergraduate lecture and seminar courses, along with supervision of graduate students to M.A. level.

For both appointments, Ph.D. is obligatory. Fresh and salary negotiable according to qualifications. Canadian citizenship at least three letters of recommendation should be sent to Dr. T. Woolerton, Acting Chairman, Department of History, University of Victoria, Victoria, B.C., within four weeks of the date of this advertisement.

The University of Victoria reserves the right not to fill those vacancies it finds are not available.

CANADA
McGILL UNIVERSITY
Montreal, Quebec

DEPARTMENT OF HISTORY

Applications are invited for a tenure-track appointment at the ASSISTANT or ASSOCIATE PROFESSOR level in the field of EUROPEAN HISTORY, to commence on 1st July, 1977 or September 1, 1977.

Proposed salary scales (1976-77) are: Assistant Professor $12,000-$16,000; Associate Professor $20,000.

Letters of application should be addressed to Professor Stephen B. Hendrix, Chairman, Department of History, McGill University, 855 Sherbrooke St. West, Montreal H3A 2T7, Canada. Applications will be accepted until the position is filled.

CANADA
CARLETON UNIVERSITY
Ottawa

DIRECTOR
NURSING EDUCATION UNIT
(BASIC and POST-BASIC)

Applications are invited for the new post of Director of the Nursing Education Unit in the Faculty of Health Sciences which will be established in the Autumn of 1977. The Unit will be concerned with the development, implementation and evaluation of programmes sponsored by the Provincial Nursing and Social Security. The Director will lead a team undertaking a continuing programme of research into nursing aspects of nursing education. Applicants should have a good academic background with considerable research experience, some of which should preferably concern nursing and the Health Service professions.

The post will be for an initial period of five years, with extension to retirate the option to at any time considered in every two years. Salary within the range $20,000 to $25,000 per annum, including $1,000 per annum Carleton Research Fellow). Superannuation.

Further particulars and application forms, or initial informal enquiries, may be addressed to: Dean, Health Sciences, Carleton University, Ottawa, Ontario, Canada K1S 5B6. Closing date for applications: March 11, 1977.

BATH
THE UNIVERSITY
ACCOMMODATION MANAGER

Applications are invited for this non-resident post which involves the administration of all residential accommodation of the University and the negotiation of additional accommodation as required. The post will be full-time and will report to the Secretary. The successful applicant is likely to be between 30 and 40 years of age and have had practical experience in residential institutions of higher education and/or units of the hospitality or comparable industries. Applicants should have good academic qualifications and preferably a relevant professional qualification.

The successful applicant is likely to be between 30 and 40 years of age and have had practical experience in residential institutions of higher education and/or units of the hospitality or comparable industries. Applicants should have good academic qualifications and preferably a relevant professional qualification.

Salary in the range £6,423 to £7,455 per annum.

Application forms and further particulars (quoting ref. No. 77/24) may be obtained from the Secretary of Bath, Bath BA2 7AY, to whom a number of three referees, should be lodged on or before 10th March, 1977. In reply please quote Ref. No. 8005. GG.

BIRKBECK COLLEGE
UNIVERSITY OF LONDON

Applications are invited for the post of LECTURER in SPANISH and Applicants will specialise in modern Spanish and Spanish literature, and preferably with a particular interest in poetry.

Initial salary up to £5,091 on scale £3,333 to £6,084 per annum (under review) plus £400 per annum London allowance.

Further particulars and application forms may be obtained from the Secretary, Birkbeck College, Malet Street, London WC1E 7HX. Closing date: March 11, 1977.

AUSTRALIA
UNIVERSITY OF NEW SOUTH WALES
SCHOOL OF DRAMA

PROFESSOR OF DRAMA

Applications are invited for the appointment to the above-named chair, tenable from 1st January, 1978. The Professor will be responsible for the development of the School, which is housed in modern premises in the Kensington campus, 8 kilometres from the University's main buildings in Sydney.

Additional information about the School may be obtained from the Faculty of Arts, in this University.

Salary: $A26,697 per annum, subject to the consent of the Australian Government. Provident fund membership is obligatory. Income tax is payable at rates fixed by the Commonwealth Government.

For details and conditions of appointment, write to the Library Bursary, Association of Commonwealth Universities, 36 Gordon Square, London WC1H 0PF.

Application forms and further particulars may be obtained from the Registrar, University of New South Wales, Box 1, P.O. Kensington, N.S.W. 2033, Australia, or from the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

Closing date: 30th April, 1977.

BIRMINGHAM
UNIVERSITY OF ASTON
DEPARTMENT OF MODERN LANGUAGES

LECTURER in ENGLISH as a Foreign Language

Applications are invited for the above post, tenable for three years from October 1977. The successful candidate will be responsible for organising courses in practical English and language to Arabic students and teachers in a range of disciplines.

Salary: £3,333-£6,555 per annum, subject to the consent of the Treasury, according to qualifications and experience. Superannuation scheme. Initial salary will depend on qualifications and experience.

Commencing salary will be £3,333 per annum at 1 scale point for those with no experience, rising to £4,215 per annum at 4 scale points, depending on qualifications and experience.

Application forms and further particulars may be obtained from the Registrar (Ref. 2/77), University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET, to whom applications should be sent not later than 14th March 1977.

KENT
THE UNIVERSITY
Canterbury

Applications are invited for the post of PERIPATETIC LIBRARIAN (Tertiary Librarians or graduates with library qualifications and suitable experience). Salary within the range £3,588 to £4,608.

Application forms and further particulars from the Deputy Librarian, The University, Canterbury, Kent CT2 7NU, to be returned not later than 11th March, 1977, quoting reference L77/3.

LEEDS
THE UNIVERSITY
DEPARTMENT OF SOCIOLOGY

POSTGRADUATE RESEARCH

Applications are invited from student researchers to be suitably qualified this summer for research leading to the degrees of M.Phil. and Ph.D.

The Department has special interests in:

Sociological theory;
Professions in modern British society;
The study of development and modernisation.

S.S.R.C. grants will be available for the best candidates.

Further details may be obtained from the Director of Postgraduate Studies, Department of Sociology, University of Leeds, Leeds LS2 9JT.

LONDON
THE UNIVERSITY
INSTITUTE OF EDUCATION

LECTURER IN STATISTICS

Applications are invited for the post of LECTURER in the Department of STATISTICS and COMPUTING, from September 1st 1977.

The Department runs statistics courses for postgraduate degree students and research workers. Some teaching of this will be encouraged to develop further courses aiming with the application of statistical techniques to education, and will be expected to undertake research in this area.

Salary on the Lecturer Scale £3,588 to £6,606 + £654 London Allowance.

Further particulars and application forms available from the Registrar and Secretary, The University, London WC1H 0PY, to whom applications (five copies) should be sent by 14 March 1977. Quote reference H.8247/DI.

MANCHESTER
THE UNIVERSITY

TEMPORARY LECTURER IN GERMAN

Applications are invited for this two-year post from candidates with high qualifications in either Modern German Literature or in German Linguistics. Duties commence October 1st. Initial salary range per annum £3,333 to £5,978.

Particulars and application forms (returnable by March 14th) from the Registrar, The University, Manchester M13 9PL. Quote reference: 18/TT/TIMES.

MOZAMBIQUE

LECTURES in ENGLISH LINGUISTICS is required for the University Agostinho Neto, Maputo, Mozambique.

Road full particulars, visa and two referees to the Academic Registrar, The University, Box 1, Long Newport Street, Long Acre, WC2E 9JA. Tel: 01-734 5241.

SHEFFIELD
THE UNIVERSITY
CHAIR OF BIOCHEMISTRY

Applications are invited for a newly established CHAIR of BIOCHEMISTRY (tenable from 1st October or thereabouts). Salary in the range £8,010 to £8,685 per annum, according to qualifications and experience.

Further particulars may be had from the University Secretary, The University, Sheffield S10 2TN, to whom applications (two copies) should be sent by 7th March 1977. Quote Ref. B.8000/DI.

NEW ZEALAND
UNIVERSITY OF OTAGO
Dunedin, New Zealand

Applications are invited for the following positions in the Faculty of Medical Sciences:

Professorship of Biochemistry in the Department of Biochemistry and Professorship of Oral Biology in the School of Dental Science.

Previous ability in production collaborative research in the fields of teaching and research and scientific writing are essential. Applicants should have a strong interest in the application of biochemistry or oral biology to clinical practice. Preference will be given to candidates with experimental research in progress and with success and recognition in their chosen fields. Applicants for the Professorship of Biochemistry should have a strong interest in biology would also be an advantage.

Salary: Lecturer, NZ$8,674 to NZ$11,515 per annum; Professor, NZ$13,840 to NZ$15,840 per annum.

Further particulars are available from the Registrar, University of Otago, Dunedin, New Zealand.

Applications (nine) close 31st March 1977 (earlier if possible).

HONG KONG
THE UNIVERSITY

LECTURESHIP / ASSISTANT LECTURESHIP IN ARCHITECTURE

Applications are invited for a Lectureship and Assistant Lectureship in Building Economics in the Department of Architecture.

Applicants should have a suitable professional qualification (such as A.R.I.C.S.) and should preferably have a strong building economics background. Some evidence of research or advanced study in this field would be essential.

The post(s) selected for the post will be expected to teach: Developmental Economics, Planning and Analysis, Valuation, Estimating, Specifications, Quantity Surveying (including the allied subjects, and to initiate and supervise undergraduate projects related to these topics.

Annual salaries (approximate): Assistant Lecturer HK$45,200 to HK$56,400 (at present exchange £1 = HK$9.60 to HK$11.75); Lecturer HK$56,400 to HK$70,800 (£1 = HK$11.75 to HK$14.75); Senior Lecturer HK$70,800 to HK$88,200 (£1 = HK$14.75 to HK$18.38) (exact rates may be subject to variation).

Initial salary up to £3,978 a year on Other Related Grade in

Particulars from the Registrar, The University of Hong Kong, Hong Kong, to whom applications should be sent by March 1977. Quote ref. 023/DI.

SHEFFIELD
THE UNIVERSITY
DEPARTMENT OF EXTRA-MURAL STUDIES

LECTURER in CONTINUING EDUCATION
(Post-Experience Courses)

Applications are invited from candidates with appropriate qualifications and experience for the above post in CONTINUING EDUCATION. The successful candidate will be expected to explore the educational needs of professional and occupational groups in the community, to research those needs as necessary, to develop appropriate post-experience and refresher courses (and also to initiate courses for non-graduates) and to teach such courses, both on and off campus.

Initial salary in range £3,333 to £4,419 a year on scale rising to £5,055 a year, plus superannuation.

Further particulars may be obtained from the Registrar and Secretary, The University, Sheffield S10 2TN, to whom applications (five copies) should be sent by 7th March 1977. Quote reference H.8247/DI.

SHEFFIELD
THE UNIVERSITY
DEPARTMENT OF BUILDING SCIENCE

Applications are invited for a LECTURESHIP in BUILDING SCIENCE in the Department of Building Science. The post is related to building design in the areas of thermal control, ventilation, building design in relation to energy conservation in buildings. Candidates should have a degree in a relevant discipline and a higher degree in building science or engineering or equivalent professional qualifications. Experience in research, consultancy or in the building industry would be an advantage. Salary exchanges for the appointment will be £3,333 per annum at 1 scale point for those with no experience, rising to £4,215 per annum at 4 scale points, depending on qualifications and experience.

Further particulars may be obtained from the Registrar, The University, Sheffield S10 2TN, to whom applications should be sent by 14 March 1977. Quote reference H.8247/DI.

SHEFFIELD
THE UNIVERSITY

Applications are invited for a LECTURESHIP in PSYCHOLOGY

Applications are invited for a Lectureship in Psychology, tenable from October 1, 1977. The department offers a wide range of undergraduate courses with specialisation in the final year. Applicants should have a good honours degree in psychology, plus a higher degree and/or relevant research experience and active research interests.

Application forms, to be returned by 4th March, 1977, can be obtained with further particulars from the Personnel Officer, The University, Sheffield S10 2TN.

STRATHCLYDE
THE UNIVERSITY

Applications are invited for an experimental Physics post in research associated with the PLASMA/LASER PROGRAMME in the DEPARTMENT OF NATURAL PHILOSOPHY.

The successful candidate will be required to take undergraduate classes in physics, to undertake and possess an interest in some aspect of experimental research in plasma physics.

Salary scale: £4,332 a year to £6,080 with placing according to qualifications and experience. Superannuation scheme.

Application forms and further particulars (quoting reference 2/77) may be obtained from the Registrar, University of Strathclyde, Royal College Building, 204 George Street, Glasgow, G1 1XW, to whom applications should be lodged by 4th March, 1977.

UNITED STATES OF AMERICA
WEST VIRGINIA UNIVERSITY

Opening for POST-DOC TORAL ASSISTANT in particle research from the Physics Department. Work involves study of colloid and colloid chemical systems, computer simulation, computer chemical systems, chemical physics of surfaces and colloidal dispersions.

Contact Dr. S. G. Ross, Department of Physics, Morgantown, West Virginia 26506, U.S.A. Tel. 96 6 [illegible], U.S.A., 96506.

WARWICK
THE UNIVERSITY
LECTURESHIP in ELECTRICAL ENGINEERING

Applications are invited for a LECTURESHIP in ELECTRICAL ENGINEERING in the Department of Engineering. Candidates should have a first or second class honours degree in Electrical Engineering and should possess a strong interest in teaching and research in electrical engineering, and a willingness to undertake laboratory work. Preference will be given to candidates with experience in the manufacturing processes, and a knowledge of electrical engineering, and a willingness to undertake laboratory work. Preference will be given to candidates with experience in the manufacturing processes, and a knowledge of electrical engineering, and a willingness to undertake laboratory work.

Salary on the Lecturer scale £3,333 to £6,555 p.a. on scale, plus superannuation.

Application forms and further particulars from the Academic Registrar, The University, Coventry CV4 7AL, to whom applications should be sent by 4th March 1977.

WARWICK
THE UNIVERSITY
LECTURESHIP in PSYCHOLOGY

Applications are invited for a LECTURESHIP in PSYCHOLOGY tenable from October 1, 1977. The department offers a wide range of undergraduate courses with specialisation in the final year. Applicants should have a good honours degree in psychology, plus a higher degree and/or relevant research experience and active research interests.

Application forms, to be returned by 4th March, 1977, can be obtained with further particulars from the Personnel Officer, The University, Coventry CV4 7AL, to whom applications should be sent by 4th March 1977.

Fellowships and Studentships

BELFAST
THE QUEEN'S UNIVERSITY
INSTITUTE OF IRISH STUDIES

RESEARCH FELLOWSHIP

Applications are invited for the above post, tenable for one year in the first instance. Salary will be on the scale £3,333 to £4,419 per annum, according to qualifications and experience.

Fellowships are open to graduates of any university with a good honours degree in any subject relevant to the study of specific research topics.

Further particulars may be obtained from the Director, Institute of Irish Studies, The Queen's University, Belfast BT7 1NN, to whom applications (one copy only) should be sent by 1st March 1977. Quote Ref. R.8000/DI.

NORFOLK
NORTON SCHOOL OF ART

THE JOHN JARROLD FELLOWSHIP

This year the Fellowship will be awarded to a painter, sculptor or graphic artist. The Fellowship is tenable for one year and is worth £3,000. The Fellow will be required to spend a minimum of 12 weeks in residence at the School of Art, Norwich, and to give a public lecture on his work. Applications should be sent to the Principal, Norton School of Art, Norwich, Norfolk, by 31st March 1977.

BANGOR
UNIVERSITY COLLEGE OF NORTH WALES
DEPARTMENT OF ECONOMICS

Applications are invited for a Lecturership in Economics, tenable from October 1st, 1977. The successful candidate will be required to undertake teaching in the field of Economic Theory and Quantitative Economics. Salary on the Lecturer scale £3,333 to £6,555 per annum, plus £400 per annum London Allowance. Superannuation scheme.

Applications, including the names of two referees, should be sent by March 15th, 1977, to the Registrar, University College of North Wales, Bangor, Gwynedd LL57 2DG, from whom further particulars may be obtained.

THE HEALTH EDUCATION COUNCIL
in memory of MARJORIE DANIELS WARD FELLOWSHIP

In memory of Miss M. A. Ward, a former Secretary of the Council, a Fellowship is offered for study in the field of health education. The Fellowship is open to women graduates proposing to read for a B.Sc. in Theology or Philosophy and Theology, or for a research degree or the Diploma in Theology.

Further particulars from the Principal, St. Hugh's College, Oxford, to whom applications should be sent by 12th April 1977.

RESEARCH FELLOWSHIPS FOR NURSES

The Department of Health and Social Security invites applications from nurses for Research Fellowships tenable from October 1977/78 respectively in the field of health service research.

Applicants must be state registered nurses with considerable experience in nursing and with qualifications and experience likely to lead to a career in research. Applicants should have a good honours degree or equivalent qualification in a relevant discipline, or be willing to undertake a course leading to such a qualification.

Fellowships would normally be for periods of 3-12 months and would normally cover salary costs. They would be particularly relevant to those with specific development experience to write up completed research projects in the final stages of completion for whom use of facilities in the Library facilities and collaboration with the Institute's Library facilities would be useful.

Applications, including a curriculum vitae and a brief but precise outline of proposed research, should be addressed to Assistant Secretary (Research), Institute of Development Studies at the University of Sussex, Brighton BN1 9RE, United Kingdom.

Fellowships and Studentships continued

Visiting Fellowships at the Institute of Development Studies

Applications are invited from practitioners and research workers in development who would like to spend a short period at the I.D.S. working on some aspects of the Institute's priority areas of research (poverty, employment, income distribution and "rich"—"poor" country relationships).

The Fellowships would normally be for periods of 3-12 months and would normally cover salary costs. They would be particularly relevant to those with specific development experience to write up completed research projects in the final stages of completion for whom use of facilities in the Institute's Library facilities and collaboration with the Institute's Library facilities would be useful.

Applications, including a curriculum vitae and a brief but precise outline of proposed research, should be addressed to Assistant Secretary (Research), Institute of Development Studies at the University of Sussex, Brighton BN1 9RE, United Kingdom.

ST. HUGH'S COLLEGE, OXFORD

Application is invited for the following postgraduate awards:

Martinengo Cesaresco Research Scholarship

The College proposes to elect to a Research Scholarship of £1,500 in Italian Studies, tenable for one year from Michaelmas Term 1977. The Scholarship is open to graduates of any standing or seniority, who are engaged, or who propose to engage, in work in Italian literature, language or history.

Further particulars from the Principal, St. Hugh's College, Oxford, to whom applications should be sent by 12th April 1977.

Yates Senior Scholarship in Theology

The College proposes to elect to a Yates Senior Scholarship of £100 (Supplementable to £1,000) in Theology, tenable from Michaelmas Term 1977. The Scholarship is open to women graduates proposing to read for a B.Litt. in Theology or Philosophy and Theology, or for a research degree or the Diploma in Theology.

Further particulars from the Principal, St. Hugh's College, Oxford, to whom applications should be sent by 12th April 1977.

Polytechnics

SHEFFIELD CITY POLYTECHNIC
Department of Computer Studies

PRINCIPAL LECTURER in SYSTEMS ANALYSIS

Applications are invited from persons with sound academic qualifications and substantial industrial experience to lead a group of people who are developing and developing courses in the systems analysis area. The successful candidate will be expected to teach on a wide range of undergraduate courses to Masters level and he/she should have an in-depth knowledge of a particular aspect of the subject. Expertise in organisational implications of information systems, formal design methods, socio-technical principles or behavioural aspects of information systems would be ideal. The appointment has a major responsibility for a degree programme in Computing Science specialising in client study of information systems and for the future programme in Management Information Systems. Excellent facilities exist for staff development and the Department is actively developing a wide range of industrial consultancy, research and short course work.

LECTURER II in COMPUTER STUDIES
(2 posts)

Applications are invited from persons with sound academic qualifications and industrial experience to teach on a wide range of courses from Higher National Diploma to Masters Degree level. Applicants for one of the posts should have demonstrated abilities in particular area of data processing whilst the other post requires the candidate to have specialist knowledge in programming systems or in aspects of software design and engineering.

The Polytechnic offers excellent facilities for staff development and the department is actively developing a wide variety of industrial consultancy, research and short course work.

Salary Scales:
Principal Lecturer: £9,252-£9,984 (bar)-£7,992
Lecturer II: £3,333-£6,606

Application forms and further details obtainable from the Personnel Officer, Sheffield City Polytechnic, Pond Street, Sheffield, S1 1WB. Telephone House, Psychiatric House, Sheffield, S1 2BB. Completed application forms should be returned as soon as possible.

Polytechnics and Colleges seek to promote equality of opportunity between the sexes.

FLYMOUTH POLYTECHNIC

School of Behavioural & Social Science

LECTURER II PSYCHOLOGY
(2 posts)

Salary: £3,279-£5,493 (+£312 p.a. supplement)

Applications are invited for posts in Individual Differences and Physiological Psychology. Candidates must have a good honours degree in Psychology, plus a higher degree and/or relevant research experience and active research interests.

Application forms, to be returned by 4th March, 1977, can be obtained with further particulars from the Personnel Officer, PLYMOUTH POLYTECHNIC DRAKE CIRCUS PLYMOUTH PL4 8AA

LONDON
THE POLYTECHNIC OF CENTRAL LONDON
SCHOOL OF SOCIAL SCIENCES AND HUMANITIES

PART-TIME RESEARCH ASSISTANT—SOCIAL SCIENCES

Required immediately to help administer and analyse a survey of 5-7 year old children's experiences of interpersonal relationships and learning. Experience of computer analysis of data desirable. Salary £2,000 (fixed) pro rata (finishing approximately 31st March 1978) for 20 hours a week in the evening.

Applications, including details of qualifications and curriculum vitae, to Dr. Peter Woods, Social Sciences and Humanities, The Polytechnic of Central London, 309 Regent Street, London W1R 8AL. Tel. 01-486 5811 ext. 2 from whom further details can be obtained.

Classified Advertisements

To advertise in the TIMES phone John Ledbrook 01-837 1234

THE TIMES
Higher Education
SUPPLEMENT

New Printing House Square, P.O. Box 7, Gray's Inn Road, London WC1X 8EZ.

Ulster College Northern Ireland Polytechnic

Faculty of the Arts

HEAD OF SCHOOL OF LANGUAGES AND LITERATURE

Salary Scales, £7,707 to £8,913

A Director of Studies and Head of School is required for the School of Language and Literature which is concerned with teaching and research in English, French and German. The person appointed will be expected to provide academic and organisational leadership for the School. Candidates for the post should have relevant academic qualifications, including research and publications and should preferably have experience of supervising post-graduate work.

The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1971 and now has a student population of some 6,100. It has extensive new purpose built accommodation, including 750 residential places on the 114 acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal.

The Polytechnic is creating a limited number of PROFESSORSHIPS in which academic leadership—including teaching, course development and research—will be emphasised. The successful applicant for this post will be eligible to apply.

Further particulars and application forms which must be returned by March 8th may be obtained by telephoning Whiteabbey (0231) 65131, ext 2243, or by writing to:

The Establishment Officer, Ulster College, The Northern Ireland Polytechnic, Newtownabbey, Co. Antrim, BT 37 0QB.

Department of Management Development

Lecturer II in Management Studies

Applicants should hold a professional accounting qualification and experience of accounting in industry and commerce is essential. Candidates should have experience of teaching and of presenting information to non-accountants. The Department's work is concerned with the Diploma in Management Studies, the post is based at Danbury, Essex. *Ref. S/AD.2894.*

Department of Services to Industry

Lecturer II in Marketing Management

Applications are invited from academically/professionally qualified persons to teach Marketing Management subjects within a variety of programmes. These include the Postgraduate Diploma in International Marketing Management, Diplomas in Management Studies in Marketing Management and Manufacturing Management and also special short courses for Senior and Middle Management.

The successful candidate will be expected to assist in case study development, research assignments and course administration.

This post will be based at Asia House, Chadwell Heath, Romford, Essex. *(Ref. S/AD.2895)*

Salary Scale, Lecturer II, £3,279 to £5,493 (Plus £312 Supplement and London Allowance where applicable)

Further details and application form from Senior Staffing Officer (IT), North East London Polytechnic, Forest Road, London E17 4JB. Tel. 01 527 2272 (ext. 20)
Closing date March 7, 1977.

Please quote above reference no.

ARMC Anglian Regional Management Centre
NORTH EAST LONDON POLYTECHNIC • ESSEX COUNTY COUNCIL

City of Birmingham Polytechnic
SCHOOL OF PLANNING AND LANDSCAPE

Applications are invited for the post of

HEAD OF DEPARTMENT
(Grade VI)

Salary Scale: £8,037-£8,913 + £312 supplement or appropriate proportion.

Further details and application forms to be returned by the 4th March, 1977, from:
The Personnel Officer, City of Birmingham Polytechnic (THES), Room B.310, Perry Barr, Birmingham B42 2SU.

Colleges and Institutes of Technology

BRISTOL
POLYTECHNIC
DEPARTMENT OF UNIVERSITY EXTENSION

LECTURER II/SENIOR LECTURER in ESTATE MANAGEMENT

Applications are invited from persons prepared to assist in the running and further development of departmental courses in Valuation and Estate Management, both degree and diploma levels.

The person appointed will be expected to maintain close links with the profession, to undertake some teaching within the above disciplines, and should have a good degree in Land Economics, and Management or Property. Experience in some of the professional requirements would be an advantage. Preference would be given to candidates who are willing to undertake consultancy, research and assessment of teaching experience would be an advantage.

Salary scale: £3,279 to £5,061 (bar) to £5,805 (max) £6,417 plus £312 per annum supplement.

Further details and application forms to be returned by the Personnel Officer, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol, BS16 1QY.

Please quote Post Reference Number 134/88/3 in all communications.

SUNDERLAND
THE UNIVERSITY
RESEARCH OFFICERS
(Two Posts)

Salary Scale: £2,469 by £180 (1st 3 p.a.) to £3,129 (for entrants to £3,519 supplemented by FACULTY OF HUMANITIES DEPARTMENT OF BUSINESS MANAGEMENT

The successful candidate will carry out a series of investigations into industrial relations in the North East of England. The appointment is for two years (subject to review) with a possible extension.

FACULTY OF EDUCATION
LECTURER in CURRICULUM STUDIES

A two-year project on practical teaching skills starts this year and the successful candidate will be mainly involved in the work. Responsibility for the coordination in any of the curriculum areas will be considered after a year in the post. Applicants with a quantitative background are welcomed but a specialist in any curriculum area will be considered.

Further particulars and application form may be obtained from the Secretary, Sunderland Polytechnic, Castle House, Sunderland, SR1 3AD, and should be returned as soon as possible.

LEICESTER
THE POLYTECHNIC

Applications invited from suitably qualified and experienced persons for the post of STUDENT COUNSELLOR.

Salary on a scale £3,783 to £4,689, or £4,023 to £5,208 inclusive of £312 supplement.

For further particulars and application forms apply to the Staffing Officer, Leicester Polytechnic, P.O. Box 143, Leicester LE1 9BH.

THAMES POLYTECHNIC
FACULTY SECRETARY

Applications are invited for the above post. The principal duties will be to act as Secretary to the Faculty Board of Studies and to undertake other responsibilities as may be assigned by the Head of the Faculty within the established framework of duties. Applicants should be suitably qualified and experienced to undertake the duties of a Faculty Secretary. Commencing salary up to £5,283 inclusive.

Details and application form from Personnel Officer, Thames Polytechnic, Wellington Street, London SE18 6PF. Telephone 01-854 2030 ext. 2091 to whom completed applications should be returned by March 1, 1977.

DORSET INSTITUTE OF HIGHER EDUCATION
BOURNEMOUTH
RE-ADVERTISEMENT

Head of Department of Business and Professional Studies
GRADE VI

Applications are invited for the above post from suitably qualified persons to commence as soon as possible. The successful applicant is expected to have had experience in the preparation and operation of degree courses.

Salary Scale: HOD Grade VI, £8,037-£8,916 plus £312 p.a. supplement.

Applications from previous candidates will be reconsidered upon written request to the Director.

Further particulars and application forms obtainable from The Director, Dorset Institute of Higher Education, Wallisdown Road, Poole, Dorset, BH12 5BB.

DUNDEE COLLEGE OF TECHNOLOGY

LECTURESHIP IN QUANTITY SURVEYING

Applications are invited from suitably qualified graduates with a sound knowledge of the principles of quantity surveying and education. The person appointed will be required to make an essential contribution to the teaching, operation and progressive development of a course validated by CNAA leading to Chartered Membership of the Institute of Quantity Surveying. Although the teaching duties will cover a range of subjects within the field of quantity surveying, the successful applicant will also be expected to specialise in an approved area and engage in research.

Salary on the scale £3,333-£4,824 (bar) £5,187 with initial placing dependent upon experience and qualifications. Assistance with removal expenses may be available.

Further particulars and application forms obtainable from the Secretary, Dundee College of Technology, Bell Street, Dundee DD1 1HG. Completed application forms should be returned by 4th March, 1977.

Colleges of Further Education

TRINITY COLLEGE OF MUSIC, LONDON

DEPUTY DIRECTOR OF EXAMINATIONS

Trinity College of Music seeks a mature person, probably aged between 40 and 55, and preferably a graduate, to be responsible for the day-to-day running of the Examinations Department which organizes practical and written examinations at home and overseas, and to act as Deputy to the Director of Examinations.

This is an administrative post with considerable financial aspects and, whilst some musical knowledge would be helpful, proven administrative ability is essential.

Salary negotiable, up to £4,500. Application forms obtainable from the Principal's Secretary, Trinity College of Music, Mandeville Place, London, W1M 6AG. Closing date for receipt of applications, 1st March.

HARPER ADAMS AGRICULTURAL COLLEGE NEWPORT, SHROPSHIRE

LECTURER in MARKETING and BUSINESS ORGANISATION

Appointment 1st September, 1977. Lecturing mainly to students on the H.N.D. Agricultural Marketing and Business Administration Courses, operated jointly with the Mary Stallordshire Polytechnic's Department of Business and Legal Studies.

Honours Degree in Marketing and Business Studies or related subjects together with some teaching and preferably industrial experience.

Salary—Grade 2 Burnham Scale. Point of entry dependent on qualifications and experience.

Further particulars and application form from the Bursar, Harper Adams Agricultural College, Newport, Shropshire TF10 8NB.

LONDON

INNER LONDON EDUCATION AUTHORITY

LONDON COLLEGE OF PRINTING
41-47 Commercial Road
London E1 1LA

LECTURER IN PRODUCTION MANAGEMENT required to join a team in the Printing Industries Department. Applicants will be required to teach Production Management to Higher National Certificate and Diploma students and to undertake consultancy work in the printing industry. Qualifications will include a degree or equivalent, preferably in Management Studies, and a minimum of five years' experience in the printing industry, with responsibility for production management. Experience in computer applications to production management would be particularly desirable.

Salary: Lecturer, Grade I, on the Burnham scale ranging from £4,962 to £5,577 plus £402 supplement and £402 Inner London Allowance, starting point depending on qualifications, experience and superannuation.

Application forms and further details obtainable from the Senior Administrative Officer at the College.

Colleges of Higher Education

KENT

CHRIST CHURCH COLLEGE Canterbury

Applications are invited from well qualified graduates for the post of LECTURER in GEOGRAPHY with effect from 1st September, 1977. Candidates should have a special interest in human geography and field studies and they will be expected to teach to honours degree level. Courses are offered leading to the B.Ed., B.A. & B.Mus. degrees in addition to the Post-Graduate Certificate in Education.

Accommodation is available for a single person willing to be a residential tutor. The salary will be in accordance with the scale £3,019 to £6,493 (Lecturer II) or £6,081 to £6,417 (Senior Lecturer) plus £312 per annum.

Further details from the principal's Secretary, Christ Church College, Canterbury, to whom applications should be sent no later than March 1.

WINCHESTER

KING ALFRED'S COLLEGE OF HIGHER EDUCATION

Applications are invited for two LECTURESHIPS in PHYSICAL EDUCATION. Applicants will be required to teach Physical Education to B.A. Honours (History and P.E.) degree candidates and to B.Ed. degree candidates specializing in P.E. One post will require a particular interest and experience in the theoretical principles underlying physical education and the other will require a particular interest and experience in the practical aspects of physical education. Both posts will require a willingness to participate in the College's extensive sporting activities. Applicants should be graduates with a good honours degree and should have had experience of teaching in schools.

Salary: Lecturer, Grade I, on the Burnham scale ranging from £4,962 to £5,577 plus £402 supplement and £402 Inner London Allowance, starting point depending on qualifications, experience and superannuation.

Further particulars from the Principal, King Alfred's College, Winchester, closing date for applications: 21 March 1977.

General Vacancies

BRIGHTON

Immediate vacancy for experienced well qualified TEACHER of RFE with business background or interest for remaining language school offering Executive English Courses.

Apply to: Regent School, 60 Dyke Road, Brighton BN1 3JE. Telephone 01771.

Colleges of Education

CAMBRIDGE

LECTURER IN ENGLISH

Applications are invited for a temporary 1.3.77 (or Spring in Oct.1977) for, in the first instance, one year, from Sept. October, 1977.

Applicants should have an honours degree and experience of teaching in schools.

Consideration will be given to applicants who are interested in either a full-time or a part-time appointment.

Salary: Lecturer, Grade II Scale, £3,843 to £5,211.

Further details and application forms may be obtained from the Principal's Secretary, Homerton College, Cambridge CB2 2PH, to whom completed forms should be sent by 4th March.

Administration

LONDON

ASSOCIATION OF TEACHERS OF DOMESTIC SCIENCE

DEPUTY GENERAL SECRETARY

The National Secretary of the Association requires a deputy to share the work and the responsibilities of running this active Association with the help of a secretarial staff. Administrative experience essential; involvement in the field of education an advantage.

Salary negotiable.

Further particulars from Mrs Patricia Hutton, General Secretary, 29 Hamilton House, Maiden Place, London WC1E 7BJ.

THE OPEN UNIVERSITY

ADMINISTRATIVE ASSISTANT (UNIVERSITY)

£2,904 to £5,607 (or above)

Applications are invited for the post of Administrative Assistant in the Registry Section of the Academic Administration Division of the Secretary's Office. The Registry, which has 178 administrators and supporting clerical secretarial staff, is responsible for the admission, registration, certification and examination of academic administrative services for undergraduate, associate and higher degree students and for the preparation, composition and publication of the prospectuses and edition of the University's student handbook.

The main purpose of the post will be to assist the Registry administrative team by understanding defined administrative tasks or projects and subsequently, for seniority, administrators on long term absences or secondments or leave. Experience is very suitable for a graduate with a background in some other appropriate professional or executive qualification who seeks to start a career in University administration.

Further particulars and application forms are available from the Personnel Branch, The Open University, P.O. Box 76, Walton Hall, Milton Keynes, MK7 6AA, telephone Milton Keynes 66741, to whom completed applications should be sent by 4th March 1977.

REMINDER

Copy for Classified Advertisements in the THES should arrive not later than 10.30 am Monday preceding the date of publication

General Vacancies

JUNIOR PUBLISHER

As a result of the expansion of their university-level publishing, Longman Group Limited have an immediate vacancy for a Junior Publisher, specialising in Geography.

Reporting to the Humanities Publisher, the person appointed will undertake a range of interesting duties centring upon the initiation of projects and seeing these through from authors' typescript to finished books. Travel to universities and colleges in order to find new authors will be an increasingly important part of the job.

Applicants, preferably with a degree in Geography or a related subject, should have either university or post-school teaching experience or experience in publishing at this level. A particular interest in the human side of geography would be advantageous.

An attractive salary is offered together with the benefits associated with a progressive concern.

For an application form and further details please telephone or write to:

Mrs. S. Elherington,
Personnel Officer,
Longman Group Limited,
Longman House,
Burnt Mill,
Harlow, Essex.
Tel: Harlow (0279) 26721

Longman

AMGUEDDFA GENEDLAETHOL CYMRU
NATIONAL MUSEUM OF WALES

KEEPER OF GEOLOGY

Applications are invited for the Keepership of the Department of Geology which will become vacant on 1 April 1977 on the appointment of the present Keeper, Dr. D. A. Bassett, as Director of the Museum. Contributory pension rights under F.S.S.U. or the Museum Pension Scheme. Salary scale £7,509 per annum to £9,198 per annum (F.S.S.U.) or £7,586 per annum to £9,275 per annum (Museum Pension Scheme).

Further particulars may be obtained from the Secretary, National Museum of Wales, Cardiff CF1 3NP, to whom applications (3 copies) should be submitted not later than Friday, 18 March 1977.

Research

Institute of Hearing Research
University of Nottingham

Speech and Hearing Scientist

Applications are invited for an appointment to the scientific staff to develop a programme of research into interactive and other advanced methods of diagnostic assessment of auditory perceptual capacity. The primary focus will be on the ability of hearing-impaired people to analyse and use the information-bearing aspects of speech sounds. The research will be undertaken in co-operation with the Director and will be the basis of later development in auditory training, in the optimisation of lip-reading and in the detailed characterisation of hearing impairment for the specification and prescription of a new range of hearing aids.

Applicants should have relevant post-doctoral experience. Degrees may be in any scientific subject but proven expertise in perceptual testing and computer-based methods is essential. The appointment, which is superannuable, will be initially for a five year period (3 years if under 27), and is envisaged on the Grade II scale for non-clinical scientific staff (£3,781-£6,219 according to age and experience).

Further details are available from Mrs. A. Horn, Medical Research Council, 20 Park Crescent, London W1, whom applications should be received by 1st March, 1977.

MRC Medical Research Council

Announcements

WOMAN STUDIES

Catalogue from Fore Books Ltd, Shoreham, Park Road, Winchester, Hants.

PALMER'S INDEX TO THE TIMES

Limited number of the original quarterly bound volumes of this important index are available and we shall be pleased to hear from libraries, institutions, and others as to any surplus copies required. Apply to us with quote, by return, stating if offer of the 151 years—1790-1941—Index—bound—being also available in 21 reels which may be required together or singly. Details, bound sets, single reels, etc. Bernard Palmer and Bookseller, Acton Publisher Road, London, W3 6UX. Tel. 01-992 6678.

FRENCH PROTESTANT CHURCH OF LONDON

1977 EDUCATION AWARDS

Limited funds are available to assist under 25 at French students. Applications are invited for grants for study in France or elsewhere abroad, or for research, special projects or the preparation of special facilities for students.

Full details of these and other bursaries and awards can be obtained by sending a large stamped addressed envelope to: J. L. Calenby, Clerk to the Trustees, Primary Protestant Church of London, 17 Tavistock Chambers, 35 Bloomsbury Square, London, WC1A 2AL.

Overseas

STATE COLLEGE OF VICTORIA AT COBURG
MELBOURNE, AUSTRALIA

DIPLOMA OF YOUTH WORK

The State College of Victoria at Coburg is affiliated college in the State College of Victoria. Formerly a Teachers' College of the Victorian Education Department, it is now an independent institution governed by its own council.

It offers courses in teacher education and in certain professional fields. Apart from the college offers a course in Youth Work. Previously this was the Diploma of Youth Work and was conducted by the YWCA (Australia) College and was affiliated to the following previous.

CO 3/77

SENIOR LECTURER

(Readvertised)

DUTIES: To develop, supervise and co-ordinate the Youth Work unit in part-time training, responsible for at least one major subject area (traditionally in Principles and Practice of Youth Work, Group Work, Philosophy and Social Administration (Methods, Administration or Personnel Development).

QUALIFICATIONS: Basic tertiary qualifications in the Diploma of Youth Leadership or its equivalent and five years experience in the youth work field, with preferably some experience in a related field such as Psychology, Social Education, Social Work, Humanist Studies, or Community Development). Experience in Tertiary Education is desirable.

SALARY: within the range

SENIOR LECTURER II $A16,765-$A19,1[illegible]
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Applications should be sent as soon as possible and should include the Curriculum Vitae giving details of qualifications, experience, telephone numbers and the names and addresses of three referees, one of whom must be a current or recent employer.

The successful applicant will have the assistance of his/herself and family paid to Melbourne plus a removal allowance for removal expenses.

A limited tenure appointment or secondment would be considered.

NOTE: The College Council reserves the right to withdraw invitation or make no appointment in response to the advertisement.

Applications close on Monday 14th March, 1977.

The Director,
State College of Victoria at Coburg
P.O. Box 179,
COBURG, MELBOURNE, 3058

PROPOSED NOTICE OF VACANCY

Geography: Chairperson

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Nominations and applications should be sent to:

Dr. John H. Cumberland, Chairman,
Geography Search Committee,
Bureau of Business and Economic Research,
University of Maryland, College Park, Md. 20742

LETTERS TO THE EDITOR

Atkinson and libraries

Sir,—My own calculations (admittedly including an element of guesswork) suggest that implementation of the Atkinson report's proposals could require a library which has already reached the norm to withdraw over the next 10 years at least 30 volumes per full-time equivalent student (planned numbers 10 years ahead). It is not surprising that this has caused dismay among librarians; but this has been expressed in fairly general terms.

There are three specific areas where the loss in service this implies (and I might note here that the working party seems to have been concerned with quantitative in the exclusion of consideration of qualitative effects) is likely, I feel, to affect the educational standards of universities.

First, in the range of material available to the student. Because the criteria for withdrawal are those of use (admittedly the easiest), books which are little used will be withdrawn to a local store (which is likely to make them less used), and if not used in five years will be sent to a central store. Also, our students do not always read as widely as they should; does this mean we must cease to provide for what ought to be their needs? "You can take a horse to water but you cannot make it drink" was never intended to advocate the removal of horse troughs. A university library has surely an educative as well as a purely service function.

Again, because of the same criteria, librarians are likely to find themselves withdrawing those books they have provided against the future establishment of new courses. The books needed as basic background may have gone out of print when the course is founded; they will certainly be more expensive. The problem exists in scientific institutions, as I know; it is even greater in the field of literature, where the work of the last decade or so may not become set texts for the next five years at least. It will not help the cause of education if new courses are restricted by the material the library can acquire.

Finally, research; an area where—save a number of your correspondents—the problem is rather different. When a researcher will be working on books no one has touched for years, or will touch again for years in the future—I did myself. Of course they would be better kept in a few copies at a central store. But equally it is often necessary to use some of them constantly in the few years out of the century in which they are being used.

Returning them for immediate renewal every six weeks, the present British Library Lending Division requirement, would be costly in postage, BLLD forms and staff time at both ends. So some system of longer loans for books withdrawn as unused by libraries would have to be devised—and farewell to the simplicity which is the basis of the BLLD service?

Perhaps, before the University Grants Committee goes ahead with implementation of its Working Party's proposals it would care to reconsider them in this light, not just of libraries, but of university education as a whole.

Yours faithfully,
IAN LDVECY,
Deputy Librarian,
UMIST,
Manchester.

Sir,—Like most writers of Dun's Diary, Wilfred Ashworth (*THES*, February 4) is obviously a busy man—so busy, perhaps, that he can pay scant attention to his own professional literature. How else can one explain his remarkable assertion that "none of the success of academic library service has been any real dilute behaviour pattern between students of the humanities and science"? Surely the truth is that virtually every reported survey has revealed substantial differences.

A well-known recent example is Peter Mann's research at Sheffield, which he has described in *Students and Books*, 1974, with supporting references to numerous earlier surveys. Even without the weight of evidence available, commonsense should tell anyone that the reading needs of, say, a dental student are unlikely to resemble those of his fellows in the English or history departments.

Professor Ashworth's rather eccentric opinion on this point perhaps casts some doubt on the value of his later comments on the Atkinson report. He appears to be saying—as the report itself does not—that "self-renewal" provides a brilliant new solution to our problems; and also that university librarians are objecting to the idea on obscure philosophical grounds.

In fact, there is surely nothing new about the "self-renewing" principle except its somewhat bizarre name, and almost all the objections which I have seen are practical and based on experience. My own experience certainly indicates that the proposals, if carried out as an economy measure, would lead in a disastrous loss of efficiency in university libraries; but if implemented with due attention to the needs of readers, they would prove to be just about the most expensive possible way of coping with the information explosion.

Yours faithfully,
A. K. D. Campbell,
Tutor Librarian,
Institute of Education,
University of Keele.

HNDs at Thames

Sir,—Mr Gregson discussed (*THES*, January 28) some of the factors involved in the future development of the Diploma of Higher Education under the title "Should we accept the DipHE as a one A-level entry course?"—and appears to conclude that we should do so.

In his three-column article developing this theme and the possible vocational orientation of the DipHE there is no mention of the Higher National Diploma (HND) and I am astonished that the author has not taken account of a system which has existed successfully for many years on the national scale.

Thames Polytechnic is only one of many institutions which run HND courses and my particular school runs two and several degree courses which I venture to suggest most practically every point made by Mr Gregson. If I outline the HND course in mathematics, statistics and computing and its relevance to our BSc mathematics, statistics and computing and our BSc(Hons) mathematics courses, perhaps it will serve to give an example of how such courses satisfy most of his considerations.

The minimum entry qualification for this HND is one A level in mathematics and three other "O" levels (or equivalent) and the course is normally completed in two years with a qualification acceptable to industry, commerce and education. A successful third advanced year can be taken to obtain professional exemption.

Those students at Thames Polytechnic whose performance is of a sufficiently high standard at the end of the first year of this HND course are offered a transfer to the second year of the degree courses and most accept this (an average of about three per annum). Not only do the students not lose time, but at the end of the second-year degree (part 1) they are considered for the four-year sandwich honours course, or for the third year of the degree course with or without industrial training. In some 10 years, no student offered this opportunity has failed to obtain a degree.

Our HND in computer studies has also similar connexion with our BSc courses in computer science and such possibilities exist in other courses in several polytechnics.

I suggest that before we ask whether we should accept the DipHE as a one A-level entry course, we look carefully at what exists and whether the potential of the students is not already adequately exploited by a broad spectrum of entry qualifications with flexible transfer channels in many fields.

The other fields, particularly those with a vocational possibility, might be better catered for under the HND umbrella than by converted DipHEs. The advent of Technician and Business Education Councils could in the future affect such HNDs, but not necessarily adversely. Only if the TEC/BEC plans reduce the flexibility now available might there be a case for considering the replacement of the HNDs by one A-level DipHEs.

Yours faithfully,
C. H. SEFTON,
School of mathematics, statistics and computing,
Thames Polytechnic.

TEC and life sciences

Sir, May I add a few words to your report of *THES*, January 28 of the meeting on the Technician Education Council, into the life sciences? Flattery is hardly convincing coin but I must confess that I am far from being a "leading" TEC council member, my qualification for writing is that I was the only one present at the Lovell meeting.

It is proper that professional associations should seek to improve their status. This frequently means focusing attention on the growing point—the upper echelon—in order to secure for these most able people the position they deserve. A quite disproportionate amount of the "deep worry" which Clive Cookson saw seemed to me to reflect the possibility of the TEC interfering with these necessary professional politics, rather than fears about education and training as such.

However, the TEC's main interest is much less in the minority who may get degrees than in the great majority who will not. With technicians, in fact, it is very much in the country's interest that proper recognition be given to those people who stop as well as to those who go on, not least because they will actually do the job for which they have been trained. Many of the most progressive lead to progress right out of technology and science into administration.

While the TEC courses must certainly be linked with other systems of education, TEC certificates and diplomas must never be seen as staging posts or consolation prizes. Those achieving TEC qualifications alone are not failures on the route to a degree in pure science. Such an attitude has been the bane of British technical education, and one of its aspects is the uncritical acceptance of increasing numbers and grades of GCE passes as solo appropriate entry qualifications for vocational courses.

The TEC minimum requirement is a minimum, and can be varied upwards. But higher entry requirements for specific programmes should be justified on realistic educational grounds, not accepted uncritically as steps on the path to academic respectability. The several employers who said they would never consider taking on a technician with fewer than four O levels were, I believe, using technical workers expressing the attitude of one professional association, an attitude that may become more flexible as discussion becomes more detailed and, hopefully, the danger of drowning out baby with bathwater is seen to recede.

Other employers showed a more encouraging ill cautious interest in the TEC, an interest that was on the whole friendly and potentially fruitful. Many clearly knew of the lack and positive response of the joint committee for the Higher National Certificate Diploma in applied biology to any committee's discussion document, and are awaiting the outcome of the consequent discussion. I hope Mr Diggins's suggestion that the biochemistry HI standard unit is well up to final Ordinary National Certificate standard will be taken as a heartening sign that the TEC too is interested in standards, and that if it is to help produce useful, employable technicians, its standards cannot afford to be below those currently accepted.

Finally may I add my impression of H. M. I. Norris's contribution, as it differs in one important respect from that given in your report. As I understood him, Mr Norris indicated that all educational activities, not just the TEC, were likely to be judged more stringently in future, a thesis that—alas—seems indisputable. Given this, and the fact that, like it or lump it, the TEC is government policy, our task is to see it is used to ensure an adequate supply of able, properly esteemed technicians despite our somewhat unpublished resources.

Yours faithfully,
P. M. O'DONOGHUE,
Chairman, TEC life sciences programme committee,
Royal Postgraduate Medical School.

Books in chains

Sir,—In *The THES* (January 2) you published a photograph of our chained encyclopedias, cryptically captioned "Signs of the times?" Might I explain its purpose?

As this is a very small art school, we have a very small library staff. I am therefore unable to maintain really adequate opening hours. The chained Britannica and McGraw Hill Encyclopedia of Art are constantly available in a reading/study room for 12 hours a day, providing a do-it-yourself quick reference service when the library is closed.

Our students are not, I must stress, unduly dishonest but they are inclined to be absent minded, hence the chains.

Yours faithfully,
DEREK TOYNE,
Librarian,
Falmouth School of Art.

Reading engineers

Sir,—We welcome Reading University's engineers to the second half of the 20th century. Oliver Cookson's report (*THES*, January 28) on the "existing development" of their links with local colleges of further education has been carried out for many years by polytechnic engineering departments. Indeed, many polytechnics run degree and Higher National Diploma courses to the same departments, giving a real meaning to comprehensive higher education.

It is, however, pleasing to see Reading making a conscientious effort to recognize the Ordinary National Certificate/Ordinary National Diploma route for engineers, as indeed do many other universities.

Yours faithfully,
MICHAEL RUGMAN,
Department of civil engineering,
Portsmouth Polytechnic.

more letters page 14

Overseas continued

UNIVERSITY OF PETROLEUM AND MINERALS
DHAHRAN, SAUDI ARABIA

The University of Petroleum and Minerals, Dhahran, Saudi Arabia, will have teaching positions open for the Academic Year 1977-78, starting 1 September 1977. Applications are invited from

PHYSICISTS

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Apply with complete résumé on academic and professional background, list of references, and with copies of degrees/diplomas/also including personal data, such as, nationality at birth and current, home and office addresses, telephone numbers, family status (wife's maiden name, names of children, age and sex) to:

Mr. G. E. B. Harrison, Gabbitas-Thring Services Ltd.,
Broughton House, 8, 7 and 8, Sackville Street,
Piccadilly, London W1X 2BR

A representative of the University will conduct interviews in London towards the end of February.

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PRINCIPAL LECTURER IN MEDICAL TECHNOLOGY

Applications are invited for the position of Principal Lecturer in Medical Technology.

Applicants should possess an appropriate degree or a medical technology diploma (preferably of advanced standing), plus extensive experience gained in chemical laboratories or in teaching or both.

In addition, applicants should have some administrative experience.

Salary $A23,047 per annum.

REF. NO: 122/21/A3 CLOSING DATE: 18/3/77

Intending applicants should obtain a Schedule of Duties from the Personnel Branch, R.M.I.T., Box 2476V, G.P.O., Melbourne, 3001 Victoria, Australia.

Royal Melbourne Institute of Technology

3226

Courses

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Salary scale Burnham F.E. Lecturer I or II according to qualifications and experience. £3,459 to £4,377 or £3,879 to £5,493 plus London Weighting Allowance £402 plus £312 supplement.

Further details and application forms from the Director of Education, Education Dept., P.O. Box No. 1, Chesterfield House, 9 Park Lane, Wembley, Middlesex HA9 7RW. Closing date for applications 11th March, 1977.

A "REVIEW OF NEW COURSES" FEATURE

will be Published on

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